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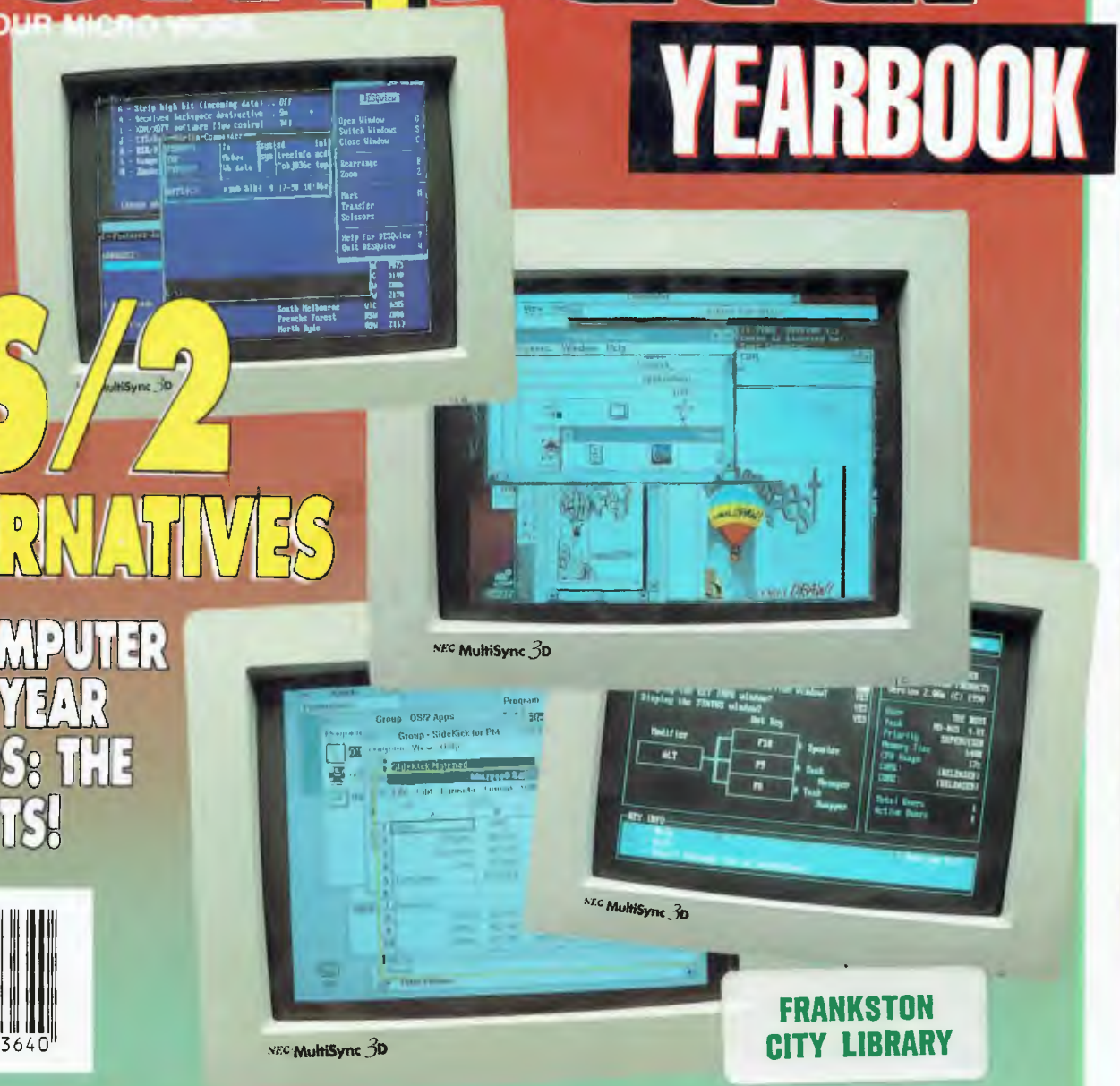

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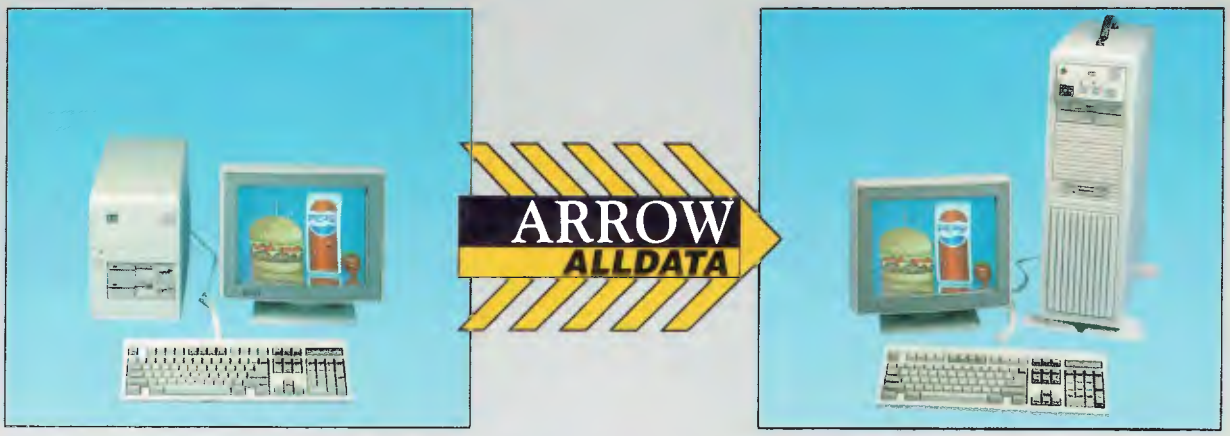

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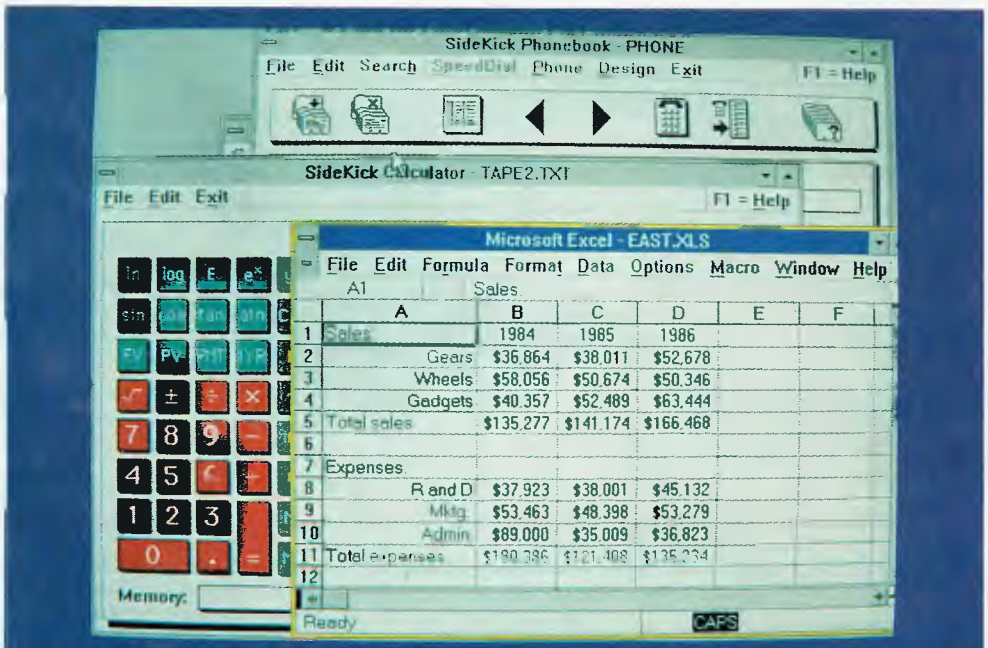

	A	B	C	D
1	Sales	1984	1985	1986
2	Gears	$36,864	$38,011	$52,678
3	Wheels	$58,056	$50,674	$50,346
4	Gadgets	$40,357	$52,489	$63,444
5	Total sales	$135,277	$141,174	$166,468
6				
7	Expenses			
8	R and D	$37,923	$38,001	$45,132
9	Mktg	$53,463	$48,398	$53,279
10	Admin	$89,000	$35,009	$36,823
11	Total expenses	$180,386	$121,408	$135,234
12				

NEXT MONTH INCLUDES

IN FEBRUARY WE announce our choice of 1990's best hardware and software – never before have we seen such a broad selection of offerings, so the race to the winning post should be an exciting one. In past years our February issue has been devoted to portables, but, reflecting a growing interest by users, this year's feature covers all aspects of 'the portable office', from hand-helds to cellular phones. If you've been saving your tech tips, February's issue tells how they could get you $100 worth of computer gear.

This month's cover: Computer courtesy of Syncomp Pty Ltd; DESQview 386 from Sourceware; Windows 3.0 from Microsoft; 386/MultiWare from Alloy; concept by Mark Cheeseman, design by Sally Anne Silveira, photography by Greg McBean.

CONTENTS

JANUARY 1991

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JAKE KENNEDY

The Windows are open!

IT'S NOW EARLY December and the responses to our 1990 Reader Survey in November's issue are still pouring in. We'll have a detailed look at *YC's* 'average reader' in February – Mark noted a minute ago that, so far, our average user seems to have a 16.1MHz 80301 with 1.2Mb of RAM and a 34Mb hard disk. I've been looking through the additional comments we asked for and have come across a number that express an attitude I *cannot* agree with at all.

Essentially, what this group is saying is 'GUI? PTUI!' The comments range from 'what about more on new software for my XT?' to an outright 'who needs Windows anyway?' Well... without meaning to alienate XT users – still about one-third of all users – and those who don't yet see a need for a Graphical User Interface, let's have a look at reality.

For a start, at *Your Computer* we see our place as guiding users towards solutions that will serve for at least several years into the future; that generally means reporting on the latest crop of releases that are finding their way into the mainstream and emphasising those that will help increase productivity. And, there's no doubt that a GUI – currently typified by Windows in the clone environment – can do that today and will increasingly do it in the future. (For quantitative data, check out 'The Benefits of GUI' in our August issue.)

To the majority of users, the significance of an interface such as Windows is that the commands are common across a number of applications – for example, most new releases now use Ctrl-S to save and Ctrl-X to exit. Compare that to an experience I had this morning: I was logged on to a US mail service, via OTC's Dialcom and the US connection, Tymnet. To log off, the commands necessary were: Exit, System, Quit... or is that Quit, Off, Bye... you get the idea; hardly a command in common between them. (I know I could script the session, but I use this particular mail service so infrequently I don't think about it until it's time to quit, or exit or whatever.)

January 1984

While it may be better to have a special Act to cover illegal copying of computer software, it seems intuitively obvious – to someone who has done it – that writing computer software is not that much different from writing poetry – ***Les Bell, Editorial, p6.***

The chief executives of Westpac, Woolworths, BP Australia and Food Plus recently announced the creation of Handyway – ***News, p9.***

That point is most important to new users of an application, of course. Of more interest to 'advanced' users is the fact that a GUI, designed to be a common interface between applications running under it, gives the programmers an opportunity to provide for a hassle-free exchange of data between those applications and – even more importantly – between users running different applications.

In the past, when PCs and users were essentially islands, that wasn't usually of much significance, but the future lies in 'sharing'. That's not just sharing data, but sharing interpretations of and connections between that data, allowing us to get on with the tasks at hand without having to become experts with the likes of interrupts and patches.

Sure, this convenience has a price – it takes about ten times as long to get Windows setup and running as it does to instal Dos and there is about one-tenth the number of applications currently available for Windows than for Dos. But, by this time next year, those numbers will have changed dramatically. While the hardware requirements for Windows are more expensive and the need for more RAM and larger hard disks probably won't lessen much, the prices will.

Not only that, but a graphical interface is going to make the penetration of computers into every aspect of our lives, regardless of the form they take, that much quicker. Many users won't even realise they are using a 'computer'.

The Windows are open to the future, and it's a pleasant breeze I can feel blowing across the PC world. □

Future Features

IN ADDITION to our application stories, news and other informative pieces, each month we present features designed to keep you informed about the world of personal computing –

February 1991
Personal Computer of the Year – the Winners and ***the portable office.***

March 1991
Desktop publishing and ***non-impact printers.***

April 1991
Add-ons and ***CD-ROM.***

Application stories – particularly those with the same theme as our features – are always welcome. Material must be received at least eight weeks prior to the month of intended publication. Please address editorial enquiries on our features to Mark Cheeseman, (02) 693 4143, and advertising enquiries to Mark Wilde, (02) 693 6646.

AMERICAN GRAFFITI

HOWARD KARTEN

On desktop publishing

WHENEVER I think about desktop publishing, I can't help thinking about some of the interesting cultural clashes that to me are closely associated with DTP. One major one is the difference in style and orientation between those who wrote the software and those who use it. In simplest terms, it's a classic difference of style vs. substance, or what is often referred to (rightly or wrongly) as the 'left brain/right brain' distinction.

The cultural clash has to do with the different personalities which are found in (or attracted to) different types of work. Occupational stereotypes (found in movies and media) are familiar to most of us – 'nerdy' engineers, unconventional artists, shark-like, opportunistic lawyers and so on.

In desktop publishing, the cultures involved are practically polar opposites. There are software designers, whose laser-sharp focus on substance and content often seems to preclude attention to packaging and 'niceties'. There are word-oriented folks like me, attuned to the information conveyed by the words (and therefore somewhat oriented to considerations of style), but not at all into issues such as layout, visual appeal, and so on. And then there are the folks with a high interest in graphics and aesthetics, who seem to harbour an equally intense desire to be shielded from anything remotely technical or 'computer-like'.

I was reminded of these ideas again recently when I set out to do a small piece of desktop publishing of my own on Ms. Computer Writer's Mac and recently-acquired laser printer.

In part, Ms. Computer Writer talks for a living. Sounds like a dream job, right? But maybe not. Like any experienced speaker, Ms. CW knows that visuals – slides – make a very effective hearing aid. She recently purchased a laser printer to use with her Mac, along with about a dozen expensive software packages to add various bells and whistles.

To get back to my adventures in laser printing, I had in mind something that seemed fairly elementary (to me, anyway). I wanted to lay out some text on a page in a certain way, plop a picture down into one portion of the text, and highlight another portion of the page. I wanted to use as little of Ms. CW's time as possible (her rates are high, even with a family discount), so I figured I'd format my page on my IBM with my word processor, making the columns and lines all the right width and length. To do the highlighting, I'd create a clear plastic overlay, with the shading in the right places, and photocopy that onto the basic page. To get this into Ms. CW's machine, I'd upload my file to a BBS I use, then download it on the Mac. I was trading off tedium (the number of steps involved) against the time and effort of learning new software and concepts. After all, I wanted to do one simple task, not become a full-fledged desktop publisher.

It's a classic difference of style vs. substance.

Useless concepts

I STILL DON'T fully grasp everything Ms. CW said when I asked for her assistance in getting my job done. The gist of it, however, was that the concepts I had learned in IBM-land were just about useless in Mac-land.

It became even clearer that I was 'barking up the wrong tree' when I asked a question about files and character counts.

As a former programmer, naturally I had a fall-back plan: I would temporarily switch cables to connect the laser printer to Ms. CW's IBM-compatible machine. Being a programmer also means thinking about the technical implications of a plan, and I realised instantly that to use the laser printer I would need to know the escape codes the printer used to determine page length, orientation, character size, and so on. When I mentioned 'escape codes' to Ms. CW, her eyes glazed over.

When I finally did find the portion of the printer manual containing the escape code listings, I was instantly back in familiar territory and in short order, I had the whole thing doped out. I disconnected the printer from the Mac, connected it to the IBM-compatible machine in Ms. CW's office, and after one or two minor changes to escape codes, I was off and running. Somehow, though, with her renewed attachment to her Mac, I had the feeling that Ms. CW was just the tiniest bit annoyed I had demonstrated that it was possible to get good results on the IBM side, with its explicit commands and *without* a mouse.

I'm not trying to make the case that one type of interface, one way of using software is better than another way for everyone. That's absurd. You could probably classify DTP users (in fact, all computer users) into perhaps a dozen different personality types (without 'forcing' personalities into non-useful classifications), and that for each, there is a distinct interface which is best for that user.

Thus suggests an obvious future direction for software. Multi-user computers have existed for years in mainframeland, and are beginning to work their way into the microcomputer area. If we have multi-user hardware, why not multi-user software – such as DTP software with a user-selectable interface? For novice users, it could have a nice, gentle, friendly interface ('Gee, we'd really appreciate it if you could give us a hint of what font you'd like to use,' 'Is 10 point type OK? Or would you like something a bit bigger, perhaps?'); for unstylish, techy users like me, the interface would be more direct ('Enter font selection esc-code').

I also see something potentially ominous in desktop publishing. It's already regarded as slightly crude to send out hard copy with an inexpensive look, such as on 7-pin dot-matrix, or typed, with erasures. Thus, anyone doing a newsletter (for example) who wants to be taken seriously uses a word processor for writing and layout. Does this mean that in the near future, anyone who wants to be taken seriously will have to DTP their work?

As for me, I've worked out my long-term solution to the perplexing moral, social, and technological issues revolving around desktop publishing. These days, whenever I feel like doing some desktop printing, I lie down till the feeling passes. □

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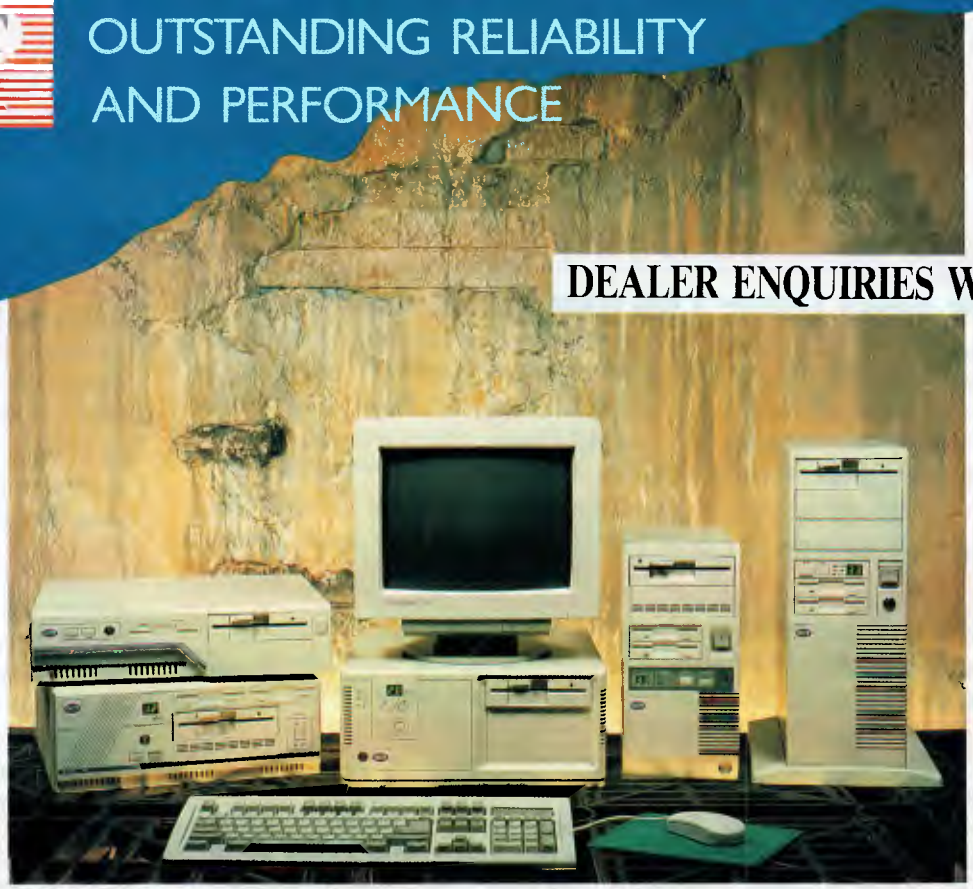

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BILL OLSON

Science and technology conference

THERE IS A big gap between modern technology and understanding that technology by the general public, according to Professor John Durant, the assistant director of the London Science Museum. Durant spoke at a Science and Technology Communicators Conference held recently in Canberra.

'Science and its practical applications are at the heart of wealth creation in modern society,' he said. 'Despite this, many people have misconceptions and anxieties about technology. When we invited people in to be surveyed we paid them five pounds, which is what most market researchers do. However, when we told them we wanted to talk about science and technology, the first reaction was that they all tried to hand back their five pounds. This tells you a lot about how the public views science.

'We did try to find out how much people know of the elementary findings of science – that is, the simple propositions that the scientific world is agreed about. Our surveys showed, for example, that ideas about the cosmos and the origins of our planet are not well known.'

Durant noted that the surveys had uncovered enormous anxieties in people who used computer controlled microwaves, for example: 'Most people have no idea how microwaves work, and this leads to a level of alienation. When you don't know, even roughly, what is happening with something you use everyday, it leads to a level of alienation from the practical world.'

Because many political decisions today also involve technology choices, Professor Durant said that a democracy needs extensive public education about technology 'because without information people are at the mercy of anybody who wants to lead them in any particular direction.

'While most citizens in a democratic country cannot make expert judgments about everything, we should all have some general level of familiarity and confidence with these issues.'

Durant disagrees with the idea that giving the public better knowledge about technology will always lead to greater support for scientific programs: 'The classic example is the use of animals in scientific research. There is a growing public concern about that issue, with quite a lot of evidence that this concern is based in many cases on serious misunderstandings about what is going on in the scientific world.'

Epson recently presented their new range of printers and PCs to government buyers in Canberra. An overwhelming sight and sound presentation at the Pavillion hotel next to Parliament House certainly gave the new range plenty of exposure. Nigel Evans, the local manager for Epson, believes the new range of low cost laser printers is going to be popular with government buyers. The new EPL-7100 in particular, with its PostScript option, should fit many office budgets.

Bureau at sea for more oil

WITH PETROL price rises starting to shrink wallets and purses around Australia, the Bureau of Mineral Resources has sent its 1500 tonne survey ship *Rig Seismic* out on a mineral survey of the ocean floor off northwest Australia.

Norm Johnston, the head of data acquisition and development for the Bureau, says that when the *Rig Seismic* goes to sea, the computers and printers on board work all day every day for more than a month. 'Because we have rostered twelve hour shifts with the computers, and there are only two people per shift, you don't want anyone on board who gets sea-sick, otherwise it can double your workload.' Johnston said.

The ship's computers collect seismic information down to 12 kilometres below the ocean floor. After the data is collected, it is processed back at the Bureau in Canberra on a Microvax. The computers on board ship are HP1000s connected to a bank of Epson printers. These printers are bolted vertically to the cabin walls, allowing the sheets of printed seismic data to roll straight down into containers on the floor.

'Our Epson printers have been hanging on the wall like that for about five years and we have never had any problems. They print a line every ten seconds, twenty four hours a day, seven days a week, when we are working at sea,' Johnston said.

The main aim of the *Rig Seismic* when surveying, is to collect general data about the geology of the sea bed. Other organi-

Sharp's 12MHz 80C286 PC-6220 has a paper-white VGA display, 1Mb RAM and a 20Mb hard drive, packed into 2kg. An optional plug-in numeric keypad offers users a full-sized keyboard.

sations, such as oil exploration companies, can then use the data to pinpoint new oil reserves.

Johnston believes that the main hope for new oil discoveries off the Australian coast is in the Northwest Shelf area of Western Australia and the Timor Sea. Both of these areas still need further exploration.

ACT Apple dealer in receivership

ACT OWNED APPLE dealer, Performance Systems, was placed in receivership recently following substantial losses. Performance Systems is owned by Performance Equity, an investment subsidiary of the former Canberra Building Society which has been taken over by the Advance Bank.

Canberra's annual technology event went off with a bit of a whisper last year.

Performance Equity's losses have been continuing since 1988 when the reported loss was $5.8 million. Most of this was attributed to the Apple reseller division, Performance Systems. Because of the continuing losses, Apple Computers appointed a receiver to Performance Systems. Performance Systems reportedly owed Apple about $7 million. It is the largest Apple reseller in Australia, employing about 150 people.

Apple did not make any detailed statements about the Performance Systems collapse, except to stress that the $1 million worth of outstanding customers' orders were being delivered immediately. There are no plans to close any more Performance Systems outlets in Queensland, NSW, Victoria or the ACT.

The Commonwealth Bank is a creditor of Performance Systems and is reported to have reached an agreement with Apple about Performance Systems' trading position.

Auscom '90 quiet

CANBERRA'S ANNUAL technology event went off with a bit of a whisper last year. On the surface all looked well, however there was an underlying air of sameness about the exhibitors. Even the design for the exhibition stands was the same as in past years. While there were some big names in technology present, anything new or spectacular was well hidden.

Two items that, although tucked away upstairs, did look appealing, were a CD-Rom encyclopaedia and a new small notepad style portable the PC-6220 from Sharp. While there have been lots of words written about laptops, there is still an interesting difference in the philosophy behind them.

Sharp have both types covered – the small new notepad machine appeals to those users who, like me, believe that if you are going into laptops, then go for lightweight portability, because there is always the desktop machine back at the office. The other philosophy wants everything in one box plus portability. The new style Sharp 386 colour portables cover this angle although, at around ten kilos or more, they need some muscle to lug about.

The encyclopedia on CD-Rom was an example of what the future could be like for image technology. This was click and point software with photos and text in an easy search style. The only drawback at present is the data, which is written specifically for the US market. The distributors could not say when an Australian version would be available.

New Year awards

AS IT IS the season of goodwill to all, here are a few New Year bonuses for professional attitudes to the computer business in 1990.

Firstly, Season's Greetings to the people at Digital – Canberra was completely overwhelmed by the size and enthusiasm of the DECworld show and the DEC users conference that followed.

Fujitsu deserve a bonus for their smooth media organisation and their chief executive's willingness to talk with the press.

Season's Greetings to Apple, for their clients who are always keen to talk about new and interesting ways of using Macs.

Two government organisations also deserve a bonus. The Defence Science and Technology Organisation and ASTEC. Both bodies are always busy promoting computers and technology as the future for Australia.

Finally, Season's Greetings to the Parliament House education office because of their friendly and informative response when asked about their new Mac driven information system.

A Happy New Year to all my readers! □

INDUSTRY UPDATES

European Cyberspace Congress

SALA COMMUNICATIONS has announced it is hosting the second European Cyberspace Congress, which will take place in Amsterdam on March 10 to 12, 1991. The conference aims to cover art and cyberspace, and terrestrial cyberspace applications, as well as fantasy cyberspace. A technology forum will also feature in the event.

According to organiser Luc Sala, the focus of the conference is on the applications in art, psychology, philosophy and science of 'virtual reality' technology. Conference fees have been set at US$195 – a fee that Sala describes as affordable for all attendees.

The first conference on this topic, which took place in September, 1990, was described as a great success according to Sala. The March conference will be limited to 250 attendees. For further information contact Sala Communications by fax on 0011-31-20-253280. □

Information Technology policies slammed

A FAR-REACHING report has widely criticised the IT (information technology) policies of the Queensland state government and its departments. The report calls for many initiatives to be introduced over the next five years.

Firstly, the report calls for the scrapping of many existing structures, and the creation of a new body, the Information Policy Board. Second, the report insists that standardisation in interdepartmental communications be introduced, to save an estimated $100M annually. Third, there should be created a Centre for Information Technology and Communications (CITEC) which would operate as a business house for marketing internally created products and services, and would also act as internal telecommunications carrier. □

Personal privacy ignored

A REPORT FROM the NSW State Privacy Committee says that NSW is not keeping pace with technological changes that threaten individual privacy. The committee says that it is being starved of funding while the government ignores the erosion of personal privacy.

It cites the proliferation of computerised police records, crime intelligence, tax and health recording systems, interdepartmental data-matching systems, financial institutions own databases and their obligations to report certain types of transactions, plus many other instances.

The report says that 'we are nowhere near providing the best protection for privacy rights. Other states have moved into second and third generation legislation while NSW has slipped further behind.'

DVI developments

INTEL JAPAN, the Japanese arm of chip giant Intel, and Tokyo-based Matsushita Graphic Communication Systems have jointly developed a DVI (digital video interactive) player. The two firms plan to sell it later this year to businesses as a presentation tool and will later launch the DVI player into the public sector as a CD-ROM video, game, and home learning tool.

DVI is an interactive media which allows storage of motion video, audio, still pictures, and character information, all on a CD-ROM (compact disk read-only memory) and can work interactively with a user. It can display motion video at 30 frames per second, a speed indistinguishable from television video. *(For more background, see 'Multimedia Takes Off' in our November, 1990, issue.)*

Running DVI applications used to require an adaptor board for a personal computer, a CD-ROM drive, an integrated amplifier, and speakers as well as a computer monitor for displaying color images. The DVI player jointly developed by the two firms does not require such a troublesome setup, allows easy operation with a mouse, and can utilise a TV set as a computer monitor.

Locally, IBM has announced multimedia products which enable its PS/2 computers to be used as multimedia workstations where sounds and images can be processed. The new products fall into three categories: still picture and sound, analog motion video and sound, and DVI.

Multimedia Audio Visual Connection (AVC) version 1.03 is software which enables color still pictures and sounds from AV (audio-visual) products such as a video camera, a VCR (video cassette recorder), or a microphone, to be input into a computer, processed and edited. It now also includes touchscreen capabilities.

Other AVC improvements include higher fidelity sound (twice the previous quality), support for MIDI files and airbrushed images.

The company has also released M-Control Program/2 which now supports Windows 3 and runs faster in its 'primary environment', OS/2. The software with the Motion Video Adaptor/A, an adaptor card used to display analog motion video and sounds played back by a VCR and a laserdisk player on a computer screen; price was unavailable at press time.

The Action Media 750 Capture Adaptor/A is expected to be released early this year. While motion video requires a large amount of data when it is digitised, DVI efficiently compresses and uncompresses the 'digital motion video data'. DVI allows storage and easy playback of as long as 72 minutes of motion video onto a CD-ROM (compact disk read-only memory). □

Doctor Disk now McAfee agent

AUSTRALIA-WIDE disk duplication service Doctor Disk has been appointed by McAfee Associates as Australian Support Group for the McAfee range of anti-virus utilities.

Doctor Disk will offer support to registered users of the McAfee utilities, as well as accepting registration fees in Australia on behalf of McAfee. The company was selected by McAfee after National Service Manager Rob Edwards visited the US and carried out talks with McAfee Associates and several corporations previously affected by virus infections. The move should make it easier for local users to register their software, as charges are now in Australian dollars, and support calls will generally be local. □

HyperCard 2.0 update

AT A PRESS conference held at the Multimedia International Conference '90 at the Japan Convention Centre, Bill Atkinson, the father of HyperCard, highlighted the new version, which users have been eagerly anticipating for almost a year now. It contains over forty functional expansions and sixty command expansions to HyperTalk. The HyperCard programming language is even easier to use than before, according to Atkinson, and makes the creation of custom software even simpler.

He said it has a variable card sizes feature which can create cards as small as 1 square inch, or as large as 18 square inches, multi-window support which allows several different stacks to be opened at the same time, more flexible text style, expanded printing functions, and a more advanced, higher-speed HyperTalk.

Atkinson told reporters that HyperCard is a user interface used as an authoring tool, mainly targeted at the education, presentation, corporate education, and communication markets. He also said that HyperCard has been developed so that a wide range of people can use it, or everyone can enjoy it. The functional expansions of HyperCard 2.0 were developed in response to requests of HyperCard users.

Bill Atkinson joined Cupertino, California-based Apple Computer, in 1978. He has been working on HyperCard to deliver customisation and user programming capabilities into the hands of the average computer user for the past few years. Atkinson terms HyperCard a 'software erector set'. Now working at General Magic, he is developing 'a new category of devices such as a personal intelligence communicator', keeping a close relationship with Apple. □

Add-in makers attack Ventura

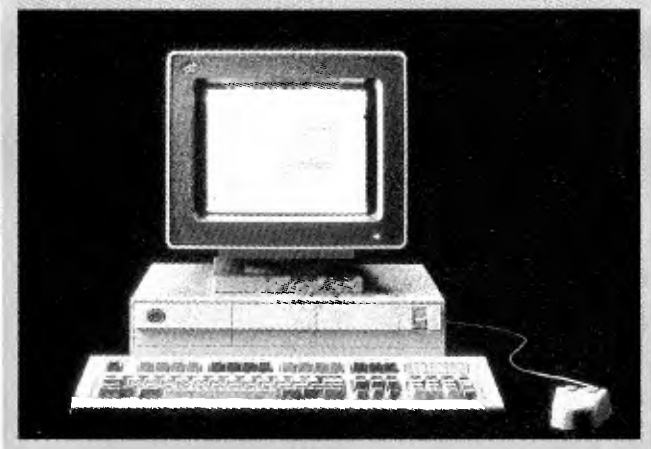
XEROX' VENTURA Software division is under attack from companies which make add-ins to its Ventura Publisher desktop publishing program. The add-in makers claim that recently, Ventura suddenly announced a plan demanding half their revenues in exchange for basic help in marketing their programs.

The add-in makers, led by Symsoft, Aristocad, SNA, Peachpit Press and Inset Systems, also set up their own group called Select Add-on Ventura Developers, or SAVED, to pool their mailing lists. They say that on September 21 Ventura sent them a letter, a copy of which was sent to Newsbytes, demanding US$2500 upfront and 50 per cent of gross revenues for participation in a new MarketMates Products Catalog and participation would be a requirement for access to Ventura's mailing list. 'Ventura has effectively killed our profit incentive,' according to Symsoft president Michael Cuthbertson.

In an interview with Newsbytes, Pat Linehan, senior vice president, sales and marketing for Ventura, disputed the contention his program would hurt add-in profits. He said the MarketMates program was begun

'Industry Updates' is sourced from the Newsbytes Network, the largest independent computer industry news service in the world.

PS/2 roll-out



IBM HAS ROLLED-OUT the biggest range of new PS/2 products since the original Personal System launch in April 1987. Two new i486-based members were added to the top of the range: the desktop Model 90 XP and the Model 95 XP. The MCA machines feature the new XGA Display Adapter/A, an intelligent chip set that takes much of the graphics processing load off the CPU and is claimed to half the display time of 256-colour screen graphics with a resolution of 1024 *x* 768 pixels, while maintaining VGA compatibility. Both models have 4Mb of high-speed (70ns) Ram which can be expanded to 32Mb on the mother board, DMA (direct memory access) serial and parallel ports and a selectable boot mode, enabling the system to be booted from any installed 'hardfile' (the term used by IBM to describe hard disk drives – HDDs – at the announcement). Purchasers can opt for either the 25 or 33MHz version of the '486.

The floor-standing Model 95 is intended as a network server and can accommodate over 9Gb of storage: up to five 320Mb HDDs internally and up to four SCSI external enclosures with 2.24Gb which can be daisy-chained to the system. The base model has a 12.5ms 320Mb SCSI HDD, a single FDD and a SCSI (small computer system interface) adapter with cache. It's priced at $25,443 for the 25MHz version or $28,014 for the 33MHz system.

The desktop Model 90 is aimed at the high-end graphics and CAD market and has room for 960Mb of internal storage. External storage is the same as the Model 95. The base configuration is essentially the same and is priced at $23,298 (25MHz) and $26,390 (33MHz).

IBM has also added to the bottom of the range with the new 'medialess' – no floppy or hard drives – Model 55 LS (LAN station) which is available with either a Token Ring or Ethernet adaptor card. The MCA system has a 16MHz 80386SX processor and 2Mb of RAM (expandable to 16Mb) and two 16-bit expansion slots. The 55 LS can accommodate optional hard and floppy disk drives. Prices are $5490 with the Token Ring adapter and $4665 with the Ethernet.

Also announced were a new 25MHz Model 80 with a 160Mb SCSI drive and 20MHz Model 80s with 80 or 160Mb SCSI drives plus a Model 65 SX with a 320Mb drive.

What could be the most significant announcement of the day was covered only lightly at the release: OS/2 version 1.3. It now can run with only 2Mb memory and is claimed to be 25 per cent faster than the previous version (for more details see Mark Cheeseman's 'OS/2 Alternatives' on page 52). Note: all prices mentioned are untaxed

From pathology to PCs

Melbourne software developer Megatec has awarded its third scholarship to Sandra Compton, a third year computing science student at Monash University, Caulfield campus. After finishing her HSC, Compton worked in a pathology laboratory; when the lab installed a computer, 'I realised then I was attracted to the problem solving and teamwork that is part of computing and I enrolled full-time in computer science.' Pictured with Compton are Megatec associate director Jim Esmonde (l.) and commercial packages manager Tim Sweeny.

because the quality of mailings from the company's add-in makers had gone down, and that Ventura merely wanted to provide its marketing partners with a new distribution vehicle. He said the company paid US$2500 to put together the original mailing, then sent out 200,000 copies to registered users in November.

'We have no experience in direct sales, but we did extensive research,' Linehan added. 'We are not an exclusive dealer, we're not a sole dealer. We just asked to be a dealer.' Linehan said the 600 users at a recent Ventura seminar in San Jose, California, reacted enthusiastically to the plan, and at first so did the add-in makers. Linehan claimed that 'fewer than five' add-in makers are complaining to this day, although the press release the complainers sent to Newsbytes contained the names of five firms.

Linehan continued, 'If they don't want us to act as a dealer, they can market any way they wish. I want to be a dealer for their products. And, I want to take a commission if a product sells through me. The people who are considered to be raising a stink, I'd like for them to call me directly, talk through how they would do things differently, and discuss the economics of it. We've had two or three of these companies commit to the program, and then change their minds. They signed contracts, and paid their money. We got blindsided, but we have 15 others who want to come in on the next production run.'

The bottom line for Linehan, however, seems to be that Ventura will insist on being a dealer for add-in products when it offers any marketing help, including access to its mailing list. 'We'll do a mailing for one of the MarketMates people, and we'll do a mailing for others. The condition is that they produce manuals themselves, and we act as a dealer of their product.' □

Compaq signs integration agreements

COMPAQ COMPUTER has announced the signing of integration agreements with Microsoft, Novell and the Santa Cruz Operation (SCO) to establish a more formal framework for their ongoing efforts to support multivendor PC systems. Five key elements make up the agreements that provide for tested multivendor configurations, coordinated technical support and training for authorised resellers. These are definition of certified platform configurations; testing and performance tuning of the platforms; supporting components in the combined platforms; joint development of future products; and joint marketing.

The platform configurations will be defined jointly by Compaq and each of the three companies, and will be based on an understanding of customer needs and current and future trends in configurations and environments. The components covered will include base hardware, operating system, network operating system, and key third-party components such as network interface cards and database and communications software. Integration labs will be established for developing and testing each reference platform and for communicating the tested configurations to Compaq authorised resellers. □

Sierra On-Line tests

SIERRA ON-LINE has begun preliminary testing of a new multi-player game technology in the Los Angeles area. Sierra makes games for the IBM PC, including the 'King's Quest' series of role-playing games.

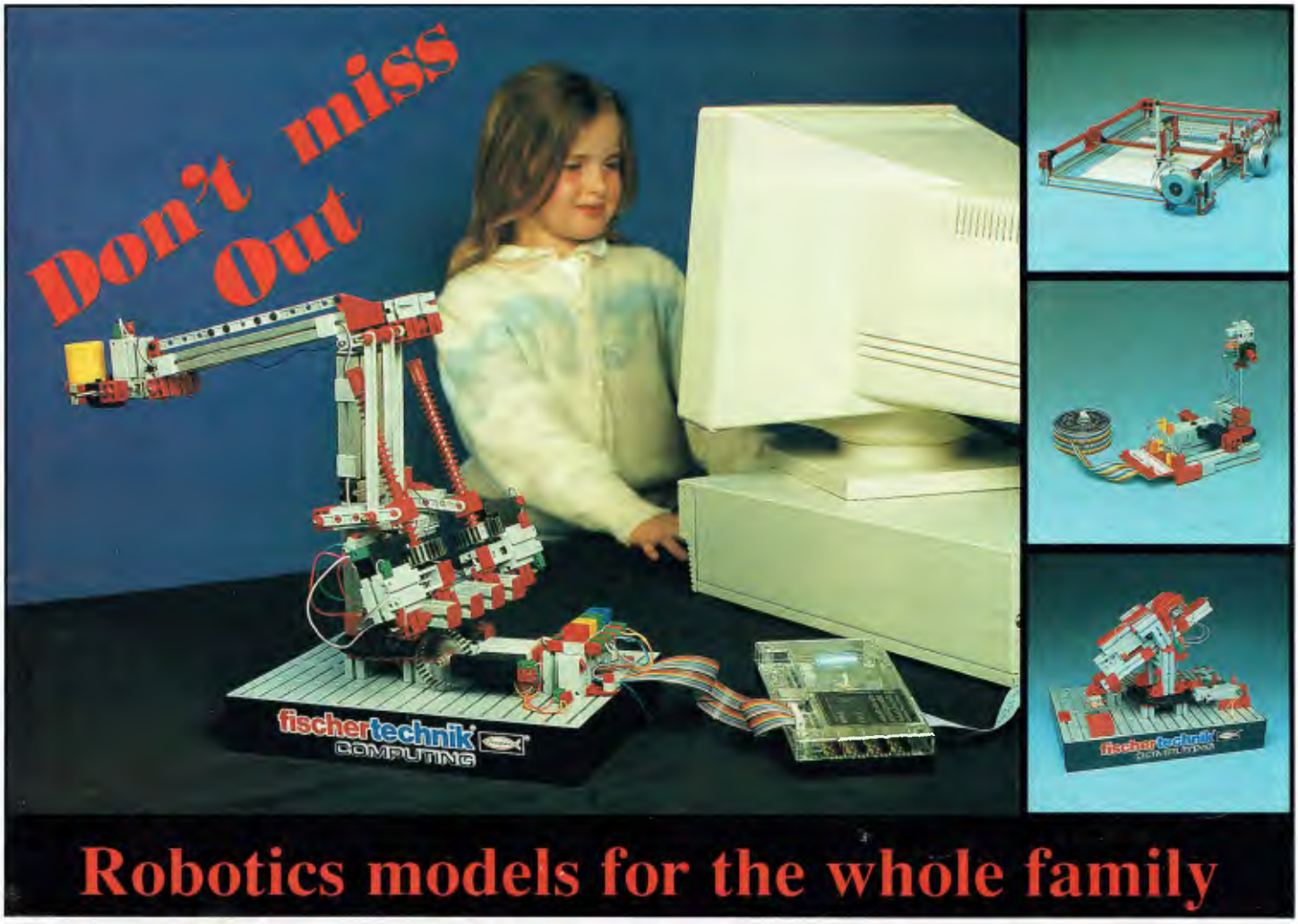
Ken Williams, president of Sierra, told Newsbytes, 'Our long-term goal is to have games, similar to those we now sell, which can be played simultaneously by large groups of people over a wide area network' like CompuServe or Prodigy. 'We have no plans currently to announce any particular product, any time table for roll-out or even any sense of what form a national roll-out might take. This announcement is only being made to correct misinformation that may have been leaked by our testers. Although we are very excited about this test, Sierra cannot speculate until next year whether it might lead to some marketable product.' □

IT vendors warn government

AUSTRALIAN INFORMATION technology vendors have warned the Australian government they will boycott future government tenders because of what they call 'impossible features' of a proposed panel contract for large systems supply to the government.

They also warn they will lobby the department of administrative services; agitate for government enquiries; and advertise the 'non-commercial nature' of government purchasing arrangements. The proposed PE47 panel contract at the centre of the dispute would, according to the vendors, add $50 million a year to industry costs.

Even IBM is backing the move, saying that it is very important for the health of the Australian IT industry. IBM's Canberra manager said that there was a danger of treating mainframes as though they were widgets.



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Western winner

A delighted Paul McCarter of Edwardstown SA won the Western 386-16SX computer that was offered as a prize to subscribers in our August, September and October, 1990, issues. The prize included a 70Mb voice coil drive, twin floppies and an NEC Multisync monitor plus PFS:First Choice, MS Windows and a Microsoft Mouse, with a total value of $8974.

NCR OSI communications software

NCR HAS RELEASED OSI (open systems interconnection) communications software, that is the industry's first implementation of OSI across an entire range of systems. This set of networking software to be used with the NCR System 3000 allows users to implement all seven layers of the OSI Reference Model across an entire enterprise, from a single workstation to a large, enterprise-level processing system.

This will enable users to run current industry standard OSI applications immediately and add other OSI capabilities as they become available. The core of this communications software, set to provide compatibility with OSI layers 2 to 7, is being delivered by NCR as a standard feature of the Unix V.4 operating system for the NCR 3300, 3400 and 3500 models at no extra cost (see December's 'Release Updates' for details on these new models).

Along with the standard layers provided with the Unix V.4 operating system, users can add new OSI application services for X.400 Message Handling System, X.500, Directory Services, File Transfer Access and Management (FTAM), Virtual Terminal, and the X.400-based NCRMail application so that users can run network applications after they have established their OSI-based network.

General customer availability is scheduled for the first quarter of 1991 for the Unix V4.0 operating system on the 3300, 3400, and 3500. License fees for the OSI application services range from $800 to $44,700 depending on application and model. For more information contact NCR, (02) 964 8111; fax (02) 929 4314. □

Microsoft institute scholarship

PATRICK LAM, a student of Sydney Technical College, has been awarded Australia's first Microsoft Institute of Advanced Software Technology scholarship, a fund set up to reward promising talent destined for the computer field.

The scholarship was set up by Microsoft and is awarded to two top students in C Programming at Sydney and Newcastle Technical Colleges. According to Professor Vance Gledhill, director of the Microsoft Institute, 'Training is a crucial part of cultivating a strong software development industry, and advancing software development skills are severely lacking in this country. The Microsoft Institute, with initiatives like the Technical College prize, aims to redress this.'

Microsoft established the Institute in partnership with the Australian government, and it is run on a non-profit basis. Any surplus revenue it earns is pooled into the Developers' Fund, which is used for interest-free loans to local developers. □

Denser WORMs to come

THE SEVEN gigabyte, write-once read-many optical disks just introduced by Maxell won't be the last word in higher-capacity optical storage, Maxell's manager of new product development, Dave Berry, told Newsbytes.

'I think probably in the next generation we'll see rates up to 10 or 12 gigabytes,' Berry said.

The new disks, said to be the highest-capacity WORM disks currently available, use constant angular velocity (CAV) recording, in which more data is recorded on the outer tracks of the disk than on the inner ones. Since tracks are concentric, there is more space in the outer tracks, but conventional recording techniques have not taken advantage of this fact. The Maxell disks are designed to work with parent company Hitachi's OD-321 WORM drive, which senses what track is being recorded and varies recording density accordingly.

'At the moment,' Berry said, 'the new Maxell disks work only in the Hitachi drives. Since standards for WORM drives are still in their infancy,' he said, 'right at this time you're kind of in a sole-source situation.' He added that work currently under way in the International Standards Organisation will probably lead to wider compatibility in the next generation of WORM drives.

'The major demand for the technology today is in document image processing applications,' Berry said, 'particularly in government and financial services.'

The 12-inch, seven gigabyte disks are to be available in the first quarter of 1991. □

IBM appliances

IBM has joined many of its competitors and is now offering PCs through seven-day per week electrical appliance discount stores. While the PS/1 range has not been released in Australia, IBM is doing a good identikit version based on a PS/2. The Ready/2Run system consists of a '286 PS/2 with single diskette drive, 30Mb hard disk and 1Mb of RAM. It also includes a VGA color monitor, Dos 3.3, an IBM 9-pin printer, Lotus Symphony, an IBM small business software package, training software and books, 45-day hotline support and 12-month warranty. Extras include classroom training and additional three or five year warranty.

Price for the package is $4999; the substitution of a 24-pin printer takes this to $5199.

Toshiba leads Dos laptop sales

'With 22 brands of IBM-compatible laptops now available in this constantly expanding and highly competitive market segment, we are extremely pleased with our increased leadership position' – Kim Hamilton, Toshiba Information Systems Division's general manager.

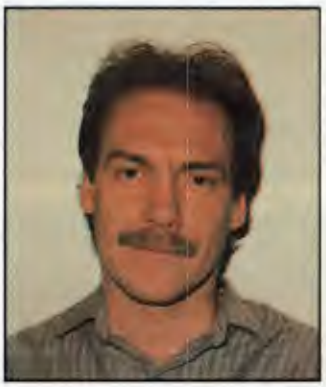
WITH ONLY APPLE Computer gaining a larger market share in Australia, Toshiba has become Australia's leading supplier of Dos-based machines, due to its high share in the laptop market.

Figures released by IDC Research show Toshiba's overall market share (by units) to be currently running at 9 per cent, with Amstrad and Compaq achieving 8.2 per cent market share and IBM 8.1 per cent. Apple Computer currently commands 22 per cent of the Australian personal computer market. In Australia, Toshiba only sells laptops, and achieved a 55.3 per cent market share of this segment. It was this high market share which took Toshiba to the lead in the Dos PC stakes.

Toshiba laptops were awarded *YC's* Computer of the Year for the last two years: The T3100SX in 1990 (the T1000SX notebook was also a Finalist) and the T5200 in 1989. □

Australian Software Publishers Assoc.

THE AUSTRALIAN Software Publishers Association (ASPA) was formed in November by five local PC software package developers and publishers. It is seeking affiliation with the international SPA based in the US. Steve Goschick, interim chairman of the ASPA said that



'Although we are currently few in number, we are a very focused and dedicated group. The need to retain that focus, over and above the need to broaden our membership, is a primary guideline of the Association' – Steve Goschick, ASPA interim chairman.

the organisation grew out of informal contacts over several years, because, 'The very broad, sweeping nature and constituency of other associations such as the AIIA, clearly weren't the place for our members. The AIIA seems to have amalgamated from diverse groups consisting of hardware and software multinationals, of large distributors of imported products, of local contractors, consultants, system integrators, tender specialists and so on – all uniting for purposes such as having a single voice to government.

'What we are concerned with is selling packaged Australian software to both individuals and corporations and to have Australian software considered on par with quality imported product.'

While the goals of the organisation have yet to be formalised, they are currently defined as:

- □ Teach the buying public and the local computer press that local software publishers exist, have good products and are associated.
- □ Develop and adhere to marketing standards.
- □ Educate the public about copyright protection and the effects of software pirating on the local publishers.
- □ Support editorial features on the Australian industry and coordinate advertising.
- □ Mount PC exhibitions to promote Australian software packages and the Association itself.
- □ Share technical data with the possibility of joint projects and/or integration of some programs.

The founding members are Phillip Bertoulis of Program Development Systems, developers of Freeway (winner of *YC's* 1990 Australian Hardware and Software Commendation), MX-Pascal and the Murrembeena Network System; Jack Kenyon and Roger Thompson of Leprechaun Software (Virus Buster); Steve Goschick of Solid Software (SeeTree, LottoCheck and the soon to be released Octadial, a game written in C++); Neville Franks of Soft As It Gets (Ed, the Programmer's Editor); Peter King of Procon Technology (the shareware game Mahjong and PLC, software for program logic control).

The ASPA would like to hear from other local developers and publishers of packaged or shrink-wrapped software. Contact either Steve Goschick on (03) 754 4377 or Phillip Bertoulis on (03) 563 3063. □

Expert system used by DVA

AN EXPERT SYSTEM developed by Canberra company, SoftLaw Corp, is being used by the Department of Veterans Affairs (DVA) to allow staff of the department to easily access information about pensions and legislation relevant to veterans affairs.

'The General' is named after Major-General Alan Morrison (retired) because of his work with the Repatriation Commission over the last eight years. The system is based around Statute, developed by SoftLaw to allow the easy tracking of legislation and case law.

In collaboration with SoftLaw and the Computer Power Group, the DVA customised the system to cater to their needs.

The system allows staff to access sections of legislation, case law, departmental rules, rates of pensions, and fringe benefits, and works under Windows 3.0. According to the Minister for Veterans' Affairs, Mr Humphreys, the system 'will mean greater certainty, less red tape, and simpler forms for veterans and their families to fill in when claiming pensions or benefits'. The Department of Social Security and the Australian Taxation Office are in the process of developing applications based around the Statute system, and Canada's veterans affairs administrators and New Zealand's accident compensation authorities have also ex-

pressed an interest in the system. □

SPA sales report

THE SOFTWARE Publisher's Association (SPA) has just released its second quarter sales summary report compiled from its participating international 670 members. According to the data, US MS-Dos sales are up 27 per cent, while Macintosh software sales gained an identical 27 per cent as compared to the same period last year.

The largest sales gain was in word processor add-on software with an 89 per cent gain, closely followed by Communications/LAN/e-mail sales which were up 76 per cent. Spreadsheet software sales are up a reported 51.5 per cent, while word processors themselves are up nearly 55 per cent and graphics programs sales have increased by 44 per cent over last year.

The SPA reports that Dos/-Windows, Macintosh, Apple II, Amiga, Unix, and OS/2 formats all posted sales gains, with Commodore 64/128 software sales down by 32.7 per cent. Apple II domestic sales gained over 10 per cent for the first half of 1990, while Amiga software sales were up a significant 34 per cent, with word processor software sales for the Amiga up 80 per cent.

Total Windows software sales are up 89 per cent for the first half, with US sales increasing 101 per cent for the second quarter alone.

OS/2 sales have increased over 850 per cent, while international sales of Dos/Windows and Macintosh software are up by nearly 50 per cent each, and US Unix software sales are up over 400 per cent.

US relational database software sales, the only percentage loser, are down 20 per cent for the first half of the year, but still account for a substantial $76.8 million in sales for the second quarter, up 7.5 per cent for that quarter alone, actually a higher percentage increase than word processing software which only gained 7.1 per cent in the US.

Flat file database sales showed a modest domestic gain but international sales were flat, while home creativity software showed a minute 2 per cent gain.

Interestingly, this word processing sales figure includes a 21.1 per cent increase for MS-Dos software (including Windows), while Macintosh word processor software dropped a whopping 47.6 per cent on the quarter.

The biggest gainer in international sales was the Communications/LAN/e-mail category, with sales jumping by well over 200 per cent for the first half of the year.

Recreational software (games) sales are up 31 per cent at $73 million (all operating systems), educational software up 40 per cent, and personal finance/income tax programs are up by 20 per cent.

Despite the popularity of Apple II computers as a platform for educational software, MS-Dos educational software sales jumped nearly 50 per cent in the second quarter, versus only a 13.7 per cent increase for the Apple II, although Apple sales are still higher in dollar value.

Largest increases in European sales were reported by 13 firms selling to the Iberia region with an increase of about 300 per cent in both unit and dollar value. The Benelux region's 14 reporting firms showed the lowest European increase with only a 4 per cent unit sales gain but a 25 per cent increase in dollar value (second quarter 1990 vs same quarter 1989).

Total European sales were up for the quarter by 47.5 per cent to US$210,534,922, while Australian sales reported by 16 firms were up about 16 per cent by unit with a value for total sales of US$18,410,960.

Only 146 companies reported on the number of employees in their company. Their staff increased on average by more than 5 per cent for the second quarter in the US, with double that increase for international employees.

Despite widespread fears of a recession, US and international software sales indicate a strong software sales environment, while the concurrent release of the US Commerce Department's GNP figures showed a strong 1.8 per cent gain versus a near recession-level 0.2 per cent increase for the last period.

(See the item 'Australian Software Publishers Association for new on the local front.)

Yearly subscriptions to the full SPA Quarterly Data reports are available for $500 per year for SPA members or US$1000 per year for non-members. For further information write to: SPA Reports, 1101 Connecticut Ave NW, Suite 901, Washington, DC 20036, USA, or phone 0011 1 202 452 1600. □

Anti-piracy drive by BSA

THE BUSINESS Software Alliance (BSA) is stepping up its activities against software piracy in Malaysia, Singapore, Hong Kong, Taiwan and Korea, reports *Asia Computer Weekly* magazine.

It wrote that BSA vice-president, Jeff Siebach, said his organisation will be conducting more raids on software dealers suspected of pirating its members' software.

BSA's activities in the past have come under criticism for using official agencies to invade private premises, forcing business users of pirated software into agreements to abide by the law.

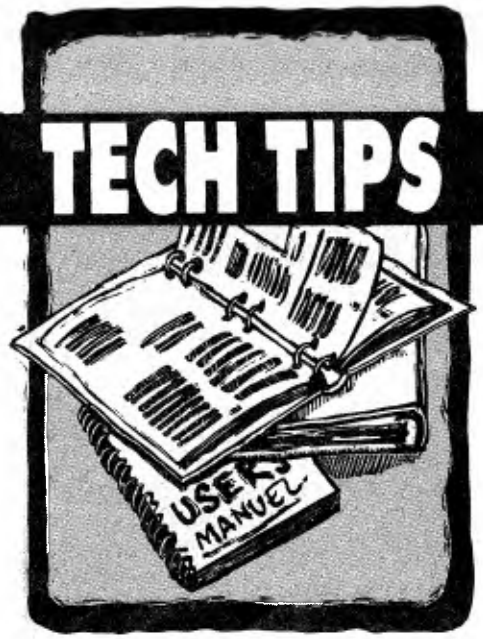
Siebach's statement comes at a time when BSA finds itself in the embarrassing position of having one of its own leading members, software distributor Imagineering (now trading as Tech Pacific), under investigation for pirating products of Lotus Corporation, one of its clients.

Meanwhile, Lotus has taken away Imagineering's exclusive distribution rights by appointing competing agencies as distributors of its products throughout Asia. Lotus denies that the new marketing arrangement has anything to do with the scandal, under which Imagineering is alleged to have repackaged Lotus products for resale without authorisation. Nevertheless, it is widely believed that it is only a matter of time before Lotus breaks all ties with the company.

Information technology journalist James Riley, writing in Hong Kong's *South China Morning Post* weekly supplement, Technology Post, comments: 'Given that top Lotus executives – including boss Jim Manzi – have never been shy about firing broadsides at users in Asia about piracy, the company reacted with surprising calm when it discovered Imagineering in Singapore with its snout in the trough.'

It remains to be seen whether BSA or Lotus, or other software publishers for that matter, will be taking a closer look at the activities of other official distributors in the region. (See page 110 for an exclusive interview with Neal Goldman, Deputy Legal Counsel for Lotus, on the organisation's worldwide activities.)

TECH TIPS



If you have a PC problem that's been bugging you, put the details on paper and send them to us, and we'll try to help. On the other hand, if you have any technical advice or hints on using hardware or software that might interest others, drop us a line and we'll pass them on. The best Tech Tip published each month will earn the author a $100 voucher, redeemable at any Rod Irving Electronics or Software Express store, or by mail order from either company. Send your letters to Tech Tips, *Your Computer*, PO Box 199, Alexandria 2015 NSW, or fax them to (02) 693 9720.

Edited by Mark Cheeseman

Share and Dos 4.0

Occasionally, when booting up under Dos 4.01, I get a message warning me that 'Share should be loaded for large media'. My understanding is that share implements file and record locking for multi-user network use, and is unnecessary for stand-alone PC use. Can you please enlighten me as to the need (if any) for share on a non-networked PC?

Nick Dyer
St Kilda, Vic

The share program in Dos 4.0 and later performs two functions. The first of these is the same as in previous versions of Dos – maintaining file and record locking in networked environments, as you already know. However there is another, less documented, function of share, which is important when running certain software on large partitions (those greater than 32Mb in size).

When Dos was first released, the way in which programs interacted with disk files was through the use of file control blocks, or FCBs, which was similar to the CP/M method of file access. Later, with Dos version 2.*xx* and later, a new, more sophisticated method, was introduced, called file handles, which is the preferred method of accessing files on contemporary Dos systems. The number of files which can have file handles assigned (and therefore be open for access) simultaneously is determined by the FILES=XX statement in the config.sys file.

The trouble with the FCB method of file access, at least as far as Dos 4 is concerned, is that it knows nothing about large partitions, and so if you are running a partition with more than 16K of clusters, there is a very real possibility that the program will scramble some important areas of your hard disk in an irretrievable fashion.

So in these instances, share performs a secondary role, translating FCB calls from software which uses them, to map correctly to clusters on the large partition. Because of the importance of loading share for large partitions, Dos takes some steps to load share itself if it can.

If there is a large partition present and share has not been loaded in either config.sys or autoexec.bat, then Dos will attempt to load it automatically. Dos uses the command interpreter to try to locate the share.exe file. So if your command interpreter (command.com) and share.exe are both in the Dos directory, then share will automatically be loaded without further intervention. But if you are in the habit of leaving command.com in the root directory, then share.exe must be located there also, leaving two extra files to clutter up your root directory.

There is no reason to have command.com in the root directory, and if you use the SHELL statement in config.sys correctly , then command.com can be loaded from the Dos directory, and provided share.exe is located there as well, it will be loaded automatically. The relevant line in config.sys should look something like:

```
SHELL=C:\DOS\COMMAND.COM C:\DOS /P
```

The first argument instructs command.com as to where it should look when the need arises to re-load the transient portion of command.com. In Dos 4, it also uses that directory to look for share.exe.

If Dos can't find share, and you haven't loaded it manually, then the error message which you report will be displayed (rather fleetingly, sometimes) on the screen. However, even without share loaded, there may not be any cause to worry. Only those programs which insist on using the old FCB way of accessing files will cause problems, and these are pretty rare nowadays.

This problem didn't arise with OEM versions of Dos 3.3, which implemented large partitions by using larger than normal clusters, since the actual number of clusters present on the disk never exceeded 16K.

Dos 4 installation

I recently upgraded my computer from Dos 3.3 to Dos 4.01, using the automated installation procedure on the 'install' disk. However, one question that it asked me left me somewhat baffled, asking me to decide between program work space, and Dos functionality, or a compromise between the two. What do each of these three options mean, and which one would I select? I have selected the 'maximum Dos functionality' option, which seems to work all right for me, but I am not sure whether I've made the correct choice.

Paul Stephenson
Leppington, NSW

Basically, this part of the Dos install program is asking you what memory-resident software it should install for you in the config.sys and autoexec.bat files. However, no matter what option you choose during installation, you can change these two files at a later date to suit your particular

requirements. Probably the best way to do this is to choose the 'maximum Dos functionality' selection, as you have done, and then edit these files to remove anything that you don't want.

When you select the 'Maximum Dos functionality' option, you end up with config.sys something like:

```
BREAK=ON
COUNTRY=61,,C:\DOS\COUNTRY.SYS
BUFFERS=25,8
FCBS=20,8
FILES=20
LASTDRIVE=E
SHELL=C:\DOS\COMMAND.COM /P /E:256
DEVICE=C:\DOS\ANSI.SYS /X
DEVICE=C:\DOS\DISPLAY.SYS CON=(EGA,
        437,1)
INSTALL=C:\DOS\FASTOPEN.EXE C:=(150,
        150)
INSTALL=C:\DOS\NLSFUNC.EXE C:\DOS\
        COUNTRY.SYS
```

and an autoexec.bat file along the lines of:

```
@ECHO OFF
SET COMSPEC=C:\DOS\COMMAND.COM
VERIFY OFF
PATH C:\DOS
APPEND /E
APPEND C:\DOS
PROMPT $P$G
C:\DOS\GRAPHICS
VER
MODE CON CP PREP=((850) C:\DOS\
                        EGA.CPI)
KEYB US,,C:\DOS\KEYBOARD.SYS
CHCP 437
PRINT /D:LPT1
DOSSHELL
```

If you were to choose the 'Balance Dos functionality and program space' option, then you'd end up with only 20 buffers instead of 25, and no look-ahead buffers (rather than eight). Also, no FCBs (file control blocks) are installed, or rather, the Dos default of 4.0 is used. The first number indicates how many FCBs can be open at once, and the second number tells Dos how many FCBs it is *not* allowed to close itself. Dos does this if an application tries to open an FCB and there are no available FCBs, due to them all being in use.

FCBs are an old way of handling files, as described earlier under the 'share' heading, few programs nowadays use them, and you can almost always leave this entry out.

Also, the 'compromise' option will only install fastopen.exe for 50 files, instead of 150. Fastopen keeps track of the physical location of files and directories on the hard disk, and saves Dos having to find frequently-accessed files each time it needs them. For each file that fastopen can track, it needs about 40 bytes of memory, so about 4K less memory is used by fastopen in this configuration than the one 'Maximum Dos' one.

All of this adds up to a saving of about 13.5K of Ram over the first option.

The 'Minimum Dos functionality' option trims the autoexec.bat and config.sys files even further. No buffers are installed at all, and neither is fastopen. The maximum number of open files is eight. Also the graphics.com program (which allows graphics screen dumps to the printer) is not loaded, and neither is the resident portion of Dos' print spooler, print.com. This gives a further saving of memory of about 24.5K over the compromise option, or a total of 38K over the 'Maximum' option.

To my thinking, there is still a lot of useless stuff in there. For example, who ever uses Nlsfunc.exe? It is supposed to allow the use of country-specific information, but why anybody would need it is beyond me. Leave that out to save another 2K. Leaving out append.exe saves a further 10K – most programs are smart enough to find the files they need without append, which in my experience causes more problems than it solves. Display.sys is another driver that most people never need, saving another 18K of valuable Ram.

On the other hand, eight files is not really enough for most applications. Three files are always open – CON (the console), AUX (an alias for COM1), and PRN (the printer). The first one makes sense, but why on earth PRN and AUX need to be open all the time I don't know.

Now, take WordStar, for example. When you start the program (version 4.0), it automatically opens two of its overlay files – Wsprint.ovr and Wsmsgs.ovr. As soon as you open a file for editing, three more files are opened – the file itself, plus the two temporary editing files. That's eight files open in all, without trying anything fancy, like reading in another file. And WordStar is hardly a demanding program as far as the machine is concerned. So 20 files would usually be considered a minimum, and if you use a multi-tasking system such as Windows or DESQview, then there is a good chance you will need to be able to have even more files open at once.

Of course, if you have a '386 and 1Mb or more of memory, you can get the best of both worlds, by loading all of those memory-hungry drivers and TSR (terminate-and-stay-resident) programs between the 640K and 1 megabyte boundaries, still leaving as much space as possible for your application programs. (See our feature on multi-tasking operating systems elsewhere in this issue for more details.)

And why the line 'Verify off' is added to autoexec.bat will probably go down as one of the not-so-great mysteries of personal computing. The 'off' state is the default state of verify, so there is no need for it at all. Personally, I don't mind the extra delay to make sure that what was written to the disk is what I thought would be written to the disk. Sure, you can use the '/v' switch after the Dos copy command, but try doing that while saving a file from your favourite word processor!

Microbee to Mac

Firstly let me congratulate you on having consistently over many years produced a magazine that even someone like myself, who is at best, computer semi-literate, can enjoy and understand most of the material. I am hoping that you may be able to help me with a small problem.

After some six years, our faithful Microbees are now on their last legs, and, following your good advice, we have now obtained a Mac Plus, principally because both my wife and I use Macs at work. Word processing is the primary use to which we put our computers, both at work and at home, and on the Mac we use Word 4.

My problem is that we have some 50 or so disks full of data from the Microbees, in CP/M format, using WordStar 3.1, which I would like to transfer to the Mac. Re-typing this volume of data is obviously out of the question. One suggestion that has been made is to have the data copied over to Mac-compatible disks commercially, however this appears to be a rather expensive operation.

In the October issue of Your Computer, *you mentioned using a null-modem to connect two computers. Could you advise me if that is a feasible solution to my problem, and how I would need to go about solving it.*

I know that on the system disk for the Mi-

croBee there are a couple of communications programs (it says so in the documentation). What sort of a program would I need for the Mac, and what sort of cables will I need?

Name and address supplied

A null-modem sounds like the solution to your problem, and you can either solder one up yourself, or buy one ready-made. A cable designed to connect a Mac to a serial printer with a DB-25 port (such as that found on the original ImageWriter) should work fine. Don't get a modem cable – it is not a null-modem, and won't work.

If you decide to make it yourself, we published details of a suitable cable in the January 1989 issue of *Your Computer* for connecting a Mac to a standard RS-232C port, such as that on the MicroBee. The wiring diagram is reproduced here for your convenience.

Once you have the cable, the question of suitable software arises. You need to have running on each computer communications software that both support the same protocol, such as Xmodem. However, since you are just transferring text files (albeit in WordStar format) over a short cable, there should be no problem in using straight ASCII transfers, if that is all that the two comms programs have in common.

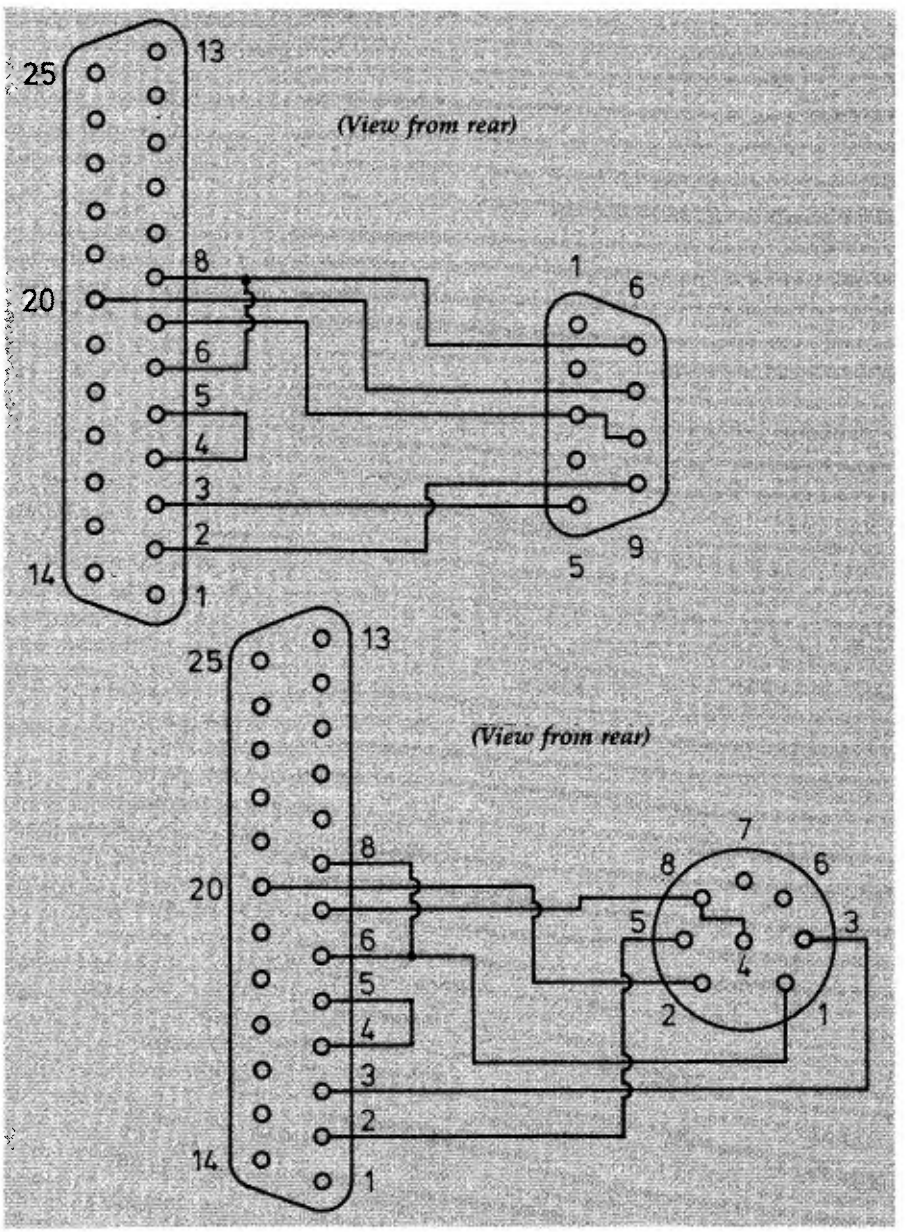
If my memory serves me correctly, the Telcom program supplied with the MicroBee supports XModem file transfers, and there are a few public-domain communications programs for the Mac which also support that protocol – Red Ryder is probably the most popular. Your local Mac users' group should be able to help you out here – the nearest one to you seems to be the ACT Apple User Group, PO Box 1231, Canberra, 2601.

Once you have software for both computers, it is now just a matter of setting up identical communications parameters at both ends. To retain the WordStar formatting, you will need to use eight data bits, otherwise the WordStar documents will end up as straight ASCII files on the Mac. The stop and parity bits can be set to one and none, respectively. Now all you have to do is transfer the contents of the disks a file at a time to the Mac.

However, you will need some form of file conversion utility to convert the WordStar files to MS Word format. There are plenty of these around, but most of the ones which can read WordStar run on IBM compatibles, which is probably not a lot of use to you unless you have ready access to an IBM. Probably the easiest way around the problem is to convert the files on the MicroBee to straight ASCII, by opening them in non-document mode and typing Ctrl-Q U.

If you have access to an IBM PC, there is a more roundabout way that you can transfer the files, depending upon the software and hardware you have access to. FBN Software, (06) 285 2218, has a marvellous utility called PC-Alien, which can read and write a large number of CP/M disk formats, including MicroBee. We used this utility extensively ourselves back in the days when CP/M was in wider use than it is now. PC-Alien does not, however, perform any file format conversion – so the CP/M WordStar files will still be in WordStar format when transferred to Dos.

This would allow you to retrieve the files from the MicroBee disks and save them to Ms-Dos disks. The second piece of extra hardware you'll need is a DaynaFile drive for a Mac, which is capable of reading Dos disks, and copying the files



This null modem cable (top) will connect a Mac to an RS232C equipped computer, such as the MicroBee; the same connection is shown (bottom) using the 8 pin mini-DIN connector.

A Typical Toshiba User Needs Power, Speed Portability, and Looks Like This

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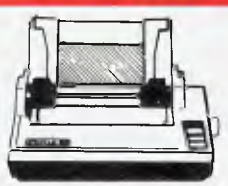

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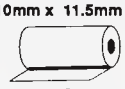

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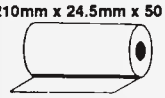

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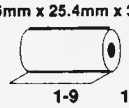

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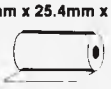

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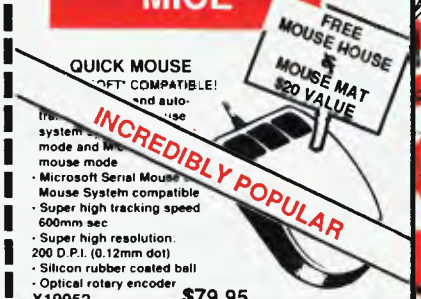

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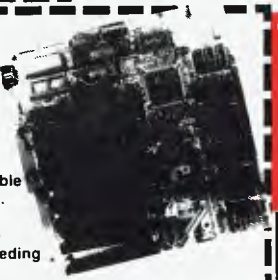

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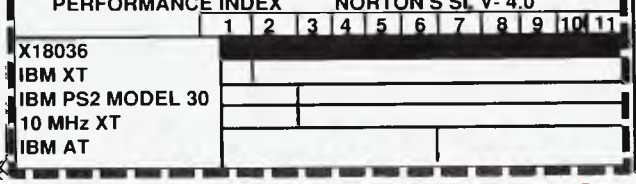

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on them to Mac format floppies or a hard disk. So while this is a two step process, if you have access to the necessary hardware it is a reasonably direct solution.

This still leaves the problem of file format conversion – WordStar 3.1 and Mac Word 4.0 are definitely problems, although they do share the ability to read and write plain ASCII files. If you save the WordStar files in plain ASCII (non-document) format, and then copy the non-document files over to the PC, and then to the Mac, they can then be imported directly into Word. However, using this method, you will lose all type attributes, and there will be no distinction between soft and hard carriage returns, making the document appear as a lot of small (one-line) paragraphs, making justification and future edition difficult.

There are some utilities which can be used to convert word processing files; one of the best I've encountered recently is Word for Word, which is distributed by Mindscape, (02) 899 2277. This can translate between almost any current word processor, including WordStar and MS Word.

Once the files have been converted to Word format on the PC, then they can be transferred to the Mac via the DaynaFile drive, and read into Word.

Volume labels

Why does Dos 4 ask me for a volume label whenever I format a floppy disk, irrespective of whether I have specified the /v switch or not. More to the point, how do I stop this annoying behaviour?

As most people would realise, in Dos versions before 4.0, format did not ask for a volume label when formatting floppies, unless specifically asked to, through the /v switch. Under Dos 4.0, the function of the /v switch has changed slightly. Rather than specifying whether or not to put a volume label on a disk, it is used to specify a volume label on the command line.

So format a: /v:label formats a disk in the A: drive, with a volume label of 'label'. Unfortunately, leaving a blank after the '/v:' switch results in an error message. One solution is to either label all disks with a dummy name, such as 'no-label', or to use a blank character, such as ASCII 255 (entered by holding down the Alt key, while typing '255' on the numeric keypad) after the /v switch.

The result of this is a volume label which prints as a blank, rather than reporting 'No Label'.

This is pretty keystroke-intensive, so you might want to create a batch file for formatting disks in this way. By the way, this Alt-255 character can also be used in filenames, if you want to keep their contents away from prying eyes. Give the file a name less than eight characters long, and then use Alt-255 as the last character of the filename. Since that character prints as a space, it will show up as a blank, but whenever somebody tries to edit the file, they won't be able to, unless they know this trick too!

Watch out for programs like the Norton Commander, which displays the files on the screen, and allows them to be edited by simply pointing to them with a highlight bar. Since the Norton Commander 'knows' that the funny character is there, it will have no trouble opening the file to edit it.

Parity errors

Sometimes when I boot up my computer I get a message saying something like 'Parity Error', whereupon the machine hangs, and needs re-booting. When I first noticed the problem, re-booting was all that was needed to fix it, but lately it seems to have been getting worse, and I have to re-boot several times before I can use the computer at all. Also, it occasionally happens while I am using an application, which is inconvenient, to say the least.

The computer in question is a President 10MHz AT, running at zero wait states, with 1Mb of Ram. I originally bought it with 640K of Ram, but a friend upgraded it a little while ago to 1 meg, using some chips he said he had 'lying around gathering dust'. Thinking this could be the cause of the problem, I had a look inside the box where the Ram chips are (according to the manual), and have located two sets of 18 identical chips, although I can't tell which are the new ones and which are the old ones. One set of chips (in two rows) has the marking 'TMS41256-15NL' on them, while the other chips are similar, but the number ends in '-10'.

Is it the new Ram chips, or something more sinister, and just a coincidence that the problem has occurred now? Should I get my friend to put the old Ram chips back in, and

Dos 5.0

As if Dos 4 wasn't enough trouble, Dos 5.0 is definitely on the way, having already completed its Beta testing, although Microsoft are being typically vague about release dates.

Probably the most useful feature of Dos 5 is its ability to load itself into high memory – the first 64Kb of extended memory. Of course, this will only work on AT and better machines, and of course, only those with extended memory available.

For those who still use Basic, the QuickBasic interpreter will be bundled along with GW-Basic. This will allow users to write better-structured programs than Gee-Whizz allows, and leaves the way open to compile them (by buying the full QuickBasic package) later on if they accidentally turn into programming masterpieces.

DosShell has also received a facelift, resembling Windows' File Manager, so that OS/2, Windows and Dos will all have a similar user interface. Of course, Dos applications will still perform their own screen management, so this resemblance will only be apparent when Dos isn't doing anything.

Limited on-line help for all Dos commands is also included, and can be accessed by typing /? after the command on the command line. An optional command-line editor is also included (about time!), expanding on the rather crude facilities provided by the function keys under previous versions.

Support for 2.88Mb (ED) 3.5-inch floppies is also provided, which should coincide nicely with the availability of suitable drives from Toshiba, and probably others. The disks will no doubt cost a bomb for a while though.

Dos 5.0 might be available by the time you read this, but if not, it can't be too far off.

leave me with 640K? I'd rather stick with a full meg if possible, since I have just bought Windows 3.0 (after reading about it in your July 1990 issue), and it is a bit crippled with only 640K of Ram.

Phil Ashley
Moana, SA

From what you write in your letter, I'd say your diagnosis is correct. The number after the dash on those Ram chips indicates their access time, in tens of nanoseconds (ns), so the chips ending in -15 are 150ns chips, while the others are 100ns. For a '286 processor running at 10MHz, 150ns is a bit slow for zero wait state operation – even 120ns chips are a bit borderline, although I have seen similar machines to yours running 120ns chips, with no trouble.

The parity error arises from a feature built into all IBM PCs, from the very first one – Ram parity checking. Instead of using eight chips for each bank of Ram, IBM (and of course, the cloners) used nine – eight to give the eight bits of storage in each byte, and a ninth, which is used to keep track of the accuracy of the data stored in the Ram, by storing a parity bit for each and every byte in the memory. When a byte is read, the parity is checked, and if there is a discrepancy, an interrupt is generated. The trouble with parity checking is that although it alerts you to a problem, it can't tell you which bit is in error – it could be any of the eight data bits, or the parity bit itself – so the only thing to do is alert you to the problem, and halt the system.

In your case, the parity errors are arising because the processor is trying to read the data from the Ram chips before they are ready. When this happens, the data from the Ram chips is not valid, and any discrepancy between the actual data on any one bit, and the data that was originally stored in the chip, will cause a parity error.

So you really have two choices – put the original Ram chips back, and lose the extra 384K of extended memory, or buy some faster 41256 chips – 100ms ones. Now that Ram prices have dropped back to more sensible levels, this would not be a major expenditure.

Windows icons

You may or may not know that you can have files represented as icons in program manager groups under Windows 3.0. To achieve this, maximise the Program Manager, and then fire up File Manager over the top of it. Re-arrange the windows so that you can see the desired Program Manager group underneath the File Manager Window. Then locate the file which you want to 'iconise', and simply drag it into the Program Manager group. It's that simple.

However, this will only work if the extension of the file in question appears under the (Extensions) heading in the Win.ini file. The icon of the associated application program is then used as the icon for the data file. If the extension of the file does not appear in Win.ini, then you will not be able to drag it into the Program Manager window.

Say, for the sake of argument, that you want to put your autoexec.bat file in a program group, so that when you double-click on it, Notepad fires up and loads autoexec.bat for editing. First, copy the autoexec.bat file to autoexec.txt (the actual name doesn't matter, nor do the contents of the file, but this is convenient), and then drag the new file to the Program Manager.

Once that has been completed, the autoexec.txt file can be deleted. Now select the icon for the new file (under Program Manager), and then select 'Properties' from the file menu. Change the 'Command line' entry to read:

and then click on OK. Next time you double-click on this icon, you will instantly be able to edit the file.

Internal or external modem?

I want to buy a 2400bps modem for my laptop (a Toshiba T1200), but I'm not sure whether to get an internal or an external model. An internal one would be nice, but they seem to cost a fair bit more than external ones. I am also hoping to get one with inbuilt fax capabilities, if this is possible.

Jan Matheson
Sutherland, NSW

There is no definitive answer to this one – it depends. Most laptops have an internal slot for a modem, but these are usually proprietary, so in a lot of cases you are restricted to the modem manufactured by the same company as the laptop. With popular models such as the Toshiba which you have, and the fact that Toshiba have the same modem slot in most of their machines (except the new notebooks), there are a number of third-party vendors for suitable modems.

Since you are also looking for fax capability, which the Toshiba modem does not have, one suitable model for you would be the WorldPort 2496, distributed by Dataplex. It supports modem communications

using both Bell and CCITT frequencies at up to 2400bps, and Group III fax at a full 9600bps. Since you have a Toshiba, you have the choice of either an internal or external unit. TouchBase Systems, who make these modems, also have a model for the new notebooks, but that one is only available in the US at present. Dataplex can be contacted on (03) 735 3333.

Internal modems have the obvious advantage of not contributing to the space occupied by computer equipment when travelling – fitting as they do within the case of the laptop itself. However, if you use an internal modem in a battery-powered machine, such as your Toshiba, then it will contribute to the drain on the battery, although most laptops have a facility to power down the modem when not in use.

Also, if you use a mouse with your laptop, an internal modem will leave the serial port free for this, so you don't find yourself constantly swapping cables and installing and un-installing mouse drivers.

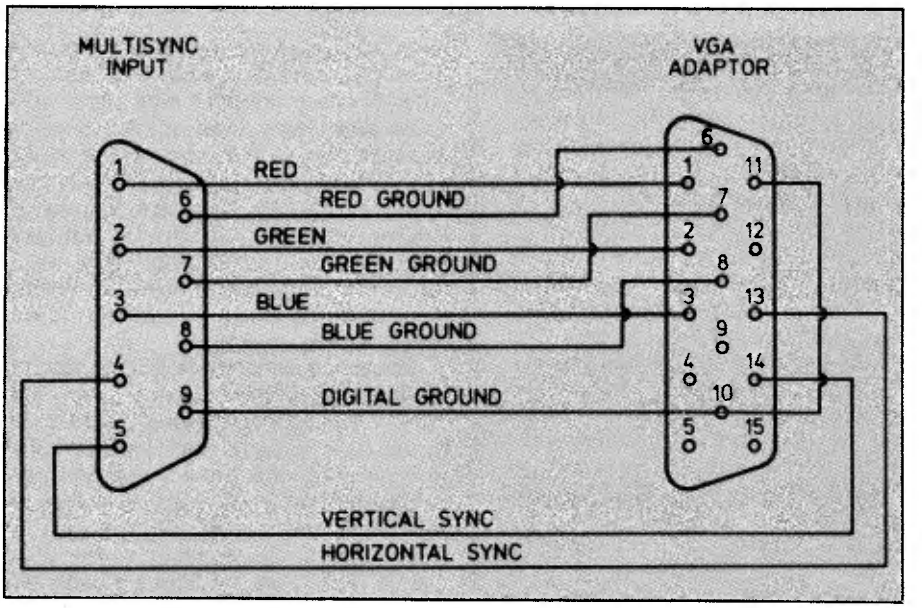
The other problem arises when you want to upgrade to a new machine at a later date. There's no way you're going to get a Toshiba-slot modem into a Compaq, and even the new Toshiba notebooks have a different slot (although again, it is the same design for several models). And don't expect an internal modem to add much to the re-sale value of the machine If a potential purchaser doesn't want a modem, there's no way he or she will pay extra for one.

External modems for portables generally cost less than internal ones, which is the opposite to the case with desktop PCs; the reason is that the proprietary nature of internal laptop modems naturally limits them to smaller production runs than for standard ISA-bus modems, so initial development costs have to be covered with a smaller number of sales.

Also Austel, Australia's telecommunications regulatory body, has rather more stringent (some would say inflexible) requirements than similar bodies overseas, so the cost of getting a modem up to Austel specifications and actually approved becomes significant when you are only expecting to sell a few hundred units.

But if you want to use it with more than one computer (there is nothing stopping you using it on the desktop at home as well), or if you think you may be getting a new laptop in the future, with a different modem slot, then an external model is the one to go for. They generally run on internal nine volt batteries (the ones we called 'transistor batteries' in the transistor radio days), but even the alkaline ones only last for a few hours at best, due to the high current drain of the circuitry. There is a 2400bps modem on sale in the US, which draws its power from the laptop and phone line, but I think the chances of it gaining Austel approval are pretty slim.

The extra size of a portable modem is not really a major problem when travelling, as they really are quite small nowadays – certainly smaller than any desktop model.



The pin connections for Multisync input to a VGA adapter – note the jumper between pins 10 and 11 on the VGA adapter. If a shielded cable is used, connect the shield to the 'digital ground' pin at each end of the connector.

VGA on old monitor?

I'm in love! I've just seen Windows 3.0 running on a VGA, and I want one. My current system has an EGA card with an EIZO 8060S monitor. According to my manual, the monitor can display analog signals (which, I gather, is the reason VGA can display so many colours), but I am unsure whether VGA signals are special in some way – the manual only mentions PGA, which I've never heard of. Can I get a VGA card to work with this monitor, or do I need a new monitor as well?

Greg Bouman
Paisley Park, Vic

In our April 1989 issue, we presented an article describing how to connect a pre-VGA multi-sync type monitor to a VGA card. To be able to do this, the monitor needs to be capable of handling analog inputs, rather than the digital TTL signals used by the EGA and previous adapters. From your description your monitor sounds like a suitable candidate.

The only thing you will need is a suitable adapter cable. This cable needs a 9 pin D-connector on one end, to match the one on the back of the monitor, and a miniature 15 pin connector on the other end, to plug into the connector on the VGA card. Don't use the 9 pin connector found on a lot of VGA cards – this is a TTL output, and although it will work, you won't be able to see the full range of colours that the VGA standard is capable of. Ready-made adapters are also available from various computer retailers.

The design of the particular monitor will determine how well it copes with the VGA signal frequencies. For example, the NEC MultiSync (the original model) does not perform vertical auto-sizing, so you will have to adjust the vertical height control when changing modes, or put up with a slightly squashed-looking text mode.

On the other hand, some later models work perfectly well without this manual intervention, and your Eizo could be one of those. Also, some monitors will handle the SuperVGA mode supported by most contemporary cards, with a resolution of 800 *x* 600 pixels, so you can go even better than VGA. Some cards can display even higher resolutions (up to 1024 *x* 768), but the chances of you being able to display legible images at this resolution are pretty slim. You really need a 16-inch or bigger monitor to do this.

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Hint

Worried about PC security? Putting a password program in your autoexec.bat file is fine, but easily circumvented by booting from a floppy disk in the A: drive. However, if you only have one floppy drive on your controller, there is a simple fix.

Simply unplug the ribbon cable from the back of the drive, and plug it into the connector that would normally connect to the B: drive. The drive is now the B: drive, and any attempt to access the A: drive will result in an error. You will probably need to set some DIP switches (on an XT) or run the setup program (on an AT), to recognise the drive in its new location.

Of course, you can now no longer boot from a floppy disk, so make sure you are careful with changes to the config.sys and autoexec.bat files. Using this technique, and locking the keyboard (if the BIOS allows the system to boot with a locked keyboard) allows an unattended computer to be protected from all but the most determined villain.

QEMM crashes

I recently purchased the Quarterdeck Expanded Memory Manager , with the main intention of using it to put device drivers and terminate-and-stay-resident programs into memory above the 640K limit. However, try as I might, I cannot get it to work. The supplied 'Optimize' program crashes whenever I run it, and if I try to use loadhi.com or loadhi.sys myself, they report that there is no high memory. By the way, my machine has 2Mb of Ram, and I am assuming that some of that is high Ram and the rest is ordinary extended memory.

K. Foster
Jindalee, WA

One of the disadvantages of self-installing software is that many software publishers use this as an excuse for poor coverage in the manual – 'Just put the disk in the A: drive and type 'install'. Unfortunately, many machines seem to have compatibility problems with the installation program, even though the software itself may run fine. However, manually installing some software is impossible, while with others, you often need to see a successful installation on another computer, in order to see how to install it yourself. Not much help if you only have access to one computer. QEMM's Optimize program is one such program, although the problem is related not to Optimize, but to QEMM itself. The manual method is explained in the manual, but is spread across several sections of the text, and the relationship between these sections is not obvious at first.

Before looking at the specifics of your problem, it is useful to understand just what high Ram is. As you already know, conventional Ram ends at the 640Kb boundary, but the addressing range of the 8088, and the '386 in real mode, extends to 1Mb. In this space between 640K and 1M, the PC designers located various other memory devices, primarily the BIOS Rom, and Video RAM. However, there are also quite a few gaps in this space, which is usually unused, except by network cards, and a few other add-ons.

Unfortunately, this unused space is not usable on 8088 machines, since there is no memory located in these gaps. However, the memory management facilities of the '386 allow this chip to make some of its extended memory fill these gaps. Of course, this reduces the pool of extended memory available, but proper use of high Ram can increase the amount of conventional memory available to applications.

DESQview, however, does not automatically set aside memory for high Ram – you need to specify this on the QEMM command line, using the RAM switch. This is the cause of the 'no high RAM' message which you have seen. The QEMM Optimize program puts this switch on the command line, and then re-boots the system. When you specify 'RAM' on the command line, QEMM looks to see what regions of the memory map are available, and maps extended memory into these locations, making it into high Ram.

Unfortunately, the method used by QEMM to work out which regions of high memory can be used as high Ram is not fool-proof, and it will occasionally put memory in locations which it should not. QEMM cannot tell what memory locations are likely to be used by software which hasn't initialised yet, and will sometimes put Ram in these locations, causing a clash (and crash) later on.

The solution is to use the optional parameters for the Ram switch, which tells QEMM which areas of high memory it can put Ram in, and which areas to leave free. To do this, you need to know what areas of memory *can* be used for high Ram, and QEMM comes with a utility (called Qemm.com) which tells you which areas of memory can be allocated as high Ram, and those which cannot.

Firstly, install QEMM in your config.sys file, without the RAM parameter, and then re-boot the system. If you have a network, make sure that its drivers are also loaded, so that memory locations used by the network card do not get allocated to high Ram. Then type 'QEMM T' at the command line, and it will show up any unused areas of the memory map as 'mappable'. This display will be more reliable than the automatic method used by the QEMM device driver when it is loaded, since the operating system is fully initialised, and the Qemm.Com program can more accurately determine which areas of memory are free.

Make a note of those memory regions above 640K (A000) which Qemm.com says are either mappable or rammable – for the purposes of high Ram, they mean the same thing. Each of these regions should then be specified on the QEMM command line in config.sys. For example, if C800 to DFFF is mappable, then put the switch 'RAM=C800-DFFF' on the command line. Put one of these 'RAM=. . .' switches for each block of mappable Ram which you want to use as high Ram. Then re-boot, and re-run QEMM.COM, and those regions of memory will then be reported as high Ram.

You can then use Loadhi to put device drivers and TSRs into this high Ram, as described in the manual. By the way, I like to use the 'best fit' (/B) switch, which causes loadhi to put a driver or program in the smallest block of Ram in which it will fit. This means that all the small things will fill up the small blocks of high Ram, leaving the larger blocks free for bigger programs which need the extra space. Loadhi cannot split a program across memory blocks, it can only load them into an unbroken block of high Ram.

Also, bear in mind that many programs use more Ram when they are initialising than they do in their resident state. So if you have a 64Kb block, that doesn't necessarily mean that two 32Kb TSRs will fit in it. There's nothing you can do about this – if there is not enough high Ram for a program to initialise, then you will just have to put it in conventional memory. However, if you do have problems fitting everything into high Ram, put the smallest possible things into conventional memory, so as not to waste too much of it. □

PERSONAL COMPUTER'S 9TH YOUR COMPUTER'S 9TH OF THE YEAR AWARDS

THE FINALISTS!

This year's Finalists range from a notebook to a workstation – Jake Kennedy reports on the most diverse selection we've ever shortlisted.

THIS TIME LAST year we were hearing a flurry of forecasts as the gurus gave us their thoughts on what the last decade of the twentieth century would hold for users. Many of these were simply extrapolations of what we had already seen – of the smaller, faster, friendlier, more powerful variety. But there were a number of comments that I thought *did* indicate what the future holds for PC users (and you can bet the farm that by the end of this decade that will be just about everyone in the industrialised world).

The one that has stayed with me since I heard it, was made by one of the industry's real visionaries: Steve Jobs. In a widely published interview, held in late '89, he said, 'The era of personal computing is dead.' He went on to say that the next stage would be one of 'interpersonal' computing, an era of shared data. Symantec's Gordon Eubanks had similar thoughts when he expressed the view that in the '90s the emphasis would be on the needs of groups of users, rather than individuals. A spokesman for Microsoft noted that the two most significant developments in the next few years would be the ability to work with a variety applications from whatever developer, swapping between them with a click of the pointing device, and the ability to share data between these applications painlessly.

What I found remarkable about those comments was that they came, respectively from leading hardware, software and operating system developers and they all demonstrate similar perspectives. Whether we view the future of PCs from the locus of connectivity, groupware or dynamic data exchange, the single word that seems to sum it all up is 'communications' (in its most catholic sense).

I had that idea in my head when we sat down to consider who the Finalists in this year's Awards should be. While I didn't guide the proceedings in that direction, it struck me after we'd drawn up the short list just how many of the products fit into the vision described above. This was true of every category: Computer of the Year, Software Product of the Year and the Commendations for Australian software and hardware.

The criteria we did use are essentially unchanged from the Award's inception in 1983. While all the 'measures' have equal weight, the first we look for is 'innovation': is the product conceptually new, offering features unseen before? Usually the next we think about is 'ergonomics': is the product easy and comfortable to use, or a pain?

For example, some of the niftiest software we've seen this year had various methods of capturing graphics screens. Unfortunately, being able to edit those captures in another application was most often more trouble than it was worth, sometimes requiring three or more other applications for intermediate translations. Another facet of software ergonomics is 'intuitive to use' – that is, are the commands to drive it common with the other applications? For example, does it use F1 for Help, Ctrl-S to Save, and Enter to select from a menu or something unexpected like F3, Ctrl-KS and the space bar?

Overall, we look for 'technical excellence' – are the innovations really advances or side-steps? Was the product largely bug-free in its first release? Does it feel solidly engineered or cobbled together from what happened to be lying around or cheap? Another 'technical' consideration is how well the features have been integrated in the overall design.

The basic theme of the Awards is to grant recognition to those products that have improved the 'quality' of personal computing – in other words, they demonstrate the diminution of the barrier between users and what they want to do with a computer.

We offer the Awards as a service to users, a guide to the best of what is currently available off the shelf – it's a sad comment on the industry that those last five words eliminated many of the products we originally listed. In the past year it

COMPUTER

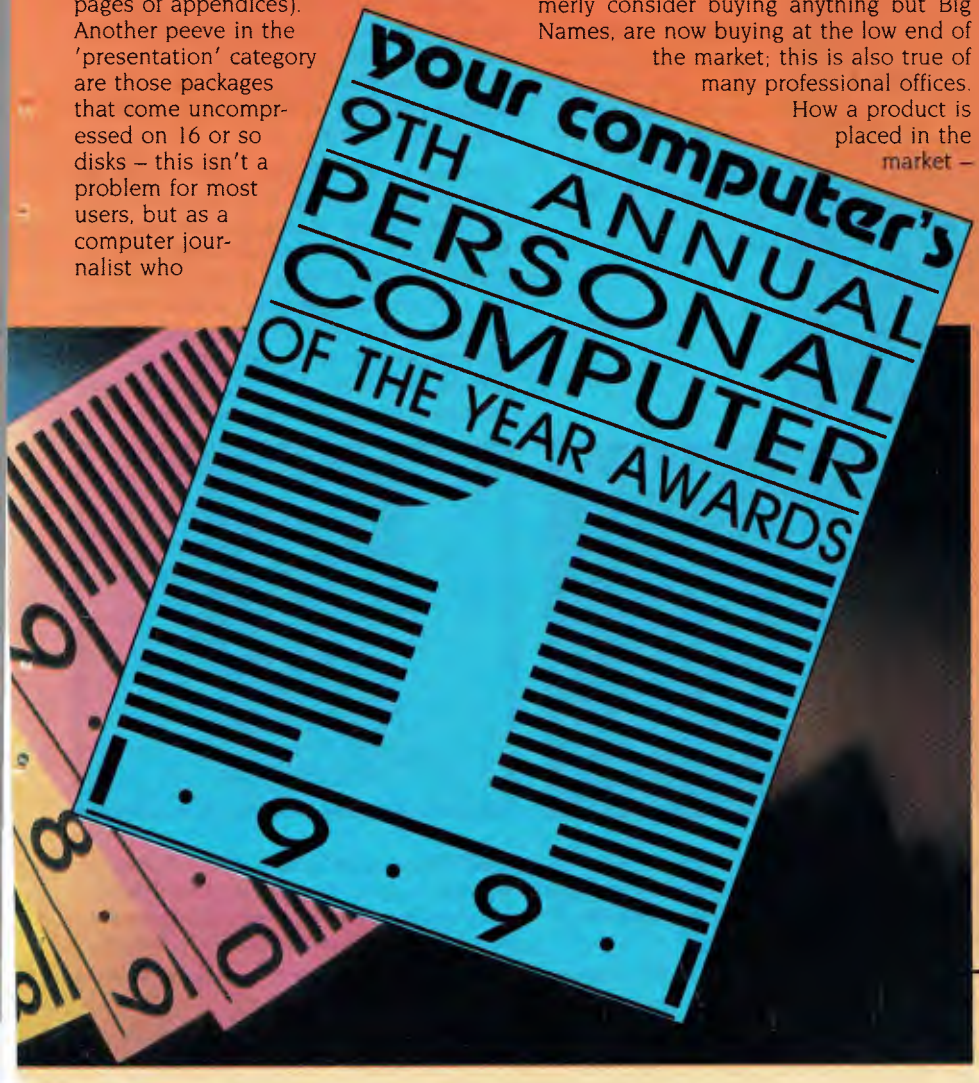
has become increasingly difficult to know just what is available: the time between announcing, releasing and shipping a product is often a year or more. While there are marketing advantages to that strategy, it's frustrating for users who commit themselves to a product and then have to wait months – years in some cases – to get their hands on a it.

Another facet we look at is 'presentation'. Obviously the appearance of the packaging itself is considered here, but such things as the organisation of the documentation carry more weight. My pet peeves in this category are software manuals with the installation procedure described in Chapter 6 and the index somewhere in the middle (followed by 200 pages of appendices). Another peeve in the 'presentation' category are those packages that come uncompressed on 16 or so disks – this isn't a problem for most users, but as a computer journalist who regularly installs up to half a dozen packages a week, it's a real irritation.

Since we intend the Awards to be a guide to purchasers, there are two other points to be considered: value for money and market placement. Businesses of all size are increasingly price conscious and have taken a close look at 'value' in the last year. An interesting trend of late is the move by many corporates and even government departments to shareware products – that would have been unheard of several years ago. Shareware is as good as it's always been, but these groups have finally learned there is more to problem solving than throwing money around. On the hardware side, it's also interesting to note that companies which wouldn't formerly consider buying anything but Big Names, are now buying at the low end of the market; this is also true of many professional offices. How a product is placed in the market – its target as defined by the marketing department – is closely related to the concept of value. After all, if a $2000 relational database development kit is offered as the ideal recipe manager, it could hardly be described as 'value'. Then there's the $99 package that bills itself as 'the only software you'll ever need'.

The discussion so far has emphasised software and its problems. That's because the hardware makers pretty well have their act together after several years of consolidation. Today, the ogre of incompatibility rarely raises its head – every clone can run Flight Simulator and drive an Epson printer. However, the technological leaps that we saw in the original NEC APC (Computer of the Year, 1983), the Apple Lisa (1984 – and what a year that was: see my November editorial), and the HP 110 laptop (1985) haven't been matched in recent years.

What we've seen is emerging engineering excellence. To real users – after all, *you* comprise by far the largest part of our readership – that's more important than innovation itself. All too many industry observers, developers and marketeers tend to forget that PCs are a productivity tool and not just an end in themselves.



The Finalists

LAST YEAR WE commented that the Finalists represented both the smallest and the most powerful PCs we'd ever seen. In the past year PCs have gotten both smaller and more powerful; by virtue of those traits they have opened whole new areas of applications to users. Our first Finalist, in fact, is almost certain to have an industry built around it.

Commodore's Amiga 3000. The Amigas have always been known as fun machines and their serious side is often overlooked. The well-written multi-tasking operating system supports impressive graphics and sound, as well as interfacing almost transparently with video equipment. Commodore has been uncertain how to market the Amiga, but the 3000 gives a purpose to the range that the company should seize on. Multimedia applications will be the next significant software 'wave' and this is a machine that should be riding the crest. Its 'aggressive' pricing ensures that hyper-

Commodore's Amiga 3000: *Multimedia applications will be the next significant software 'wave' and this is a machine that should ride the crest.*

media will be available to just about any one who wants to use it. Commodore has put a lot of engineering effort into the Amiga range – the peppering of proprietary chips on the 3000's motherboard testifies to that.

Most of these – the bus controller, DMA chip and Ram controller included – are involved with getting graphics to the screen *fast*. This is Commodore's first true 32-bit machine: the CPU is a 68030, available in 16 and 25Mhz versions. That makes the limitation to 32 onscreen colours (in low resolution), from a palette of 4096, a curious one – that's the same as the 2000. That is the only real criticism we can make of the machine – and upgrading to the 68040 motherboard will be straightforward: the expansion connector seems to have been designed with that in mind. In standard configuration the 3000 has all the expected ports and slots, and adds an AT slot (for the Dos-emulating Bridgeboard), two audio ports and a video port for interfacing to video equipment.

The 3000 introduces a new version of the operating system (2.0) which now has a 'gadget' toolkit and an object-oriented approach to gadget programming. The fact that the multimedia facilities of the machine are supported by one of the best authoring packages around – AmigaVision – only makes it better.

Hewlett-Packard's LaserJet III: *The successor to the venerable LaserJet II has quickened the pace for graphics output and the 'emulators' will have to jump to catch up.*

Compaq's LTE386s/20. The products from Compaq always feel as if they were put together by engineers, not accountants as is so often the case with 'compatibles'. That tradition is carried forward by the LTE386s/20, the latest notebook in a range that debuted with the LTE, a 1990 Finalist. At that time, we were most impressed with the way Compaq (and rival Toshiba with its T1000SE) had packed the

Compaq's LTE386s/20: *With this notebook and its docking station, Compaq have opened up a new world of applications for users on the move.*

Compaq's Systempro: *If you can see your need for computing power growing strongly in the future, this machine represents the direction in which to look.*

IBM's System/6000 Model 320: *The range not only represents a landmark for Unix-based systems, the 'low-end' 320 shows just how much power can be put on a desktop.*

punch into such a small box. The punch has gotten bigger: the solid case now houses a 20MHz '386SX (the first in a portable) with 2Mb of Ram and a 60Mb hard disk (a new 2.5-inch design). The processor's performance is enhanced by a 4K Ram cache, giving zero wait states much of the working time. The engineers took a new approach to motherboard design: it's assembled while flat, but it is then 'snapped' and folded over, giving a very compact unit with fewer connections than similar boards. This and the new hard disk should make for a robust work horse.

Folding the motherboard left room for a connector to the option that makes this notebook stand above the crowd. Expansion units for portables have been available for some time in various configurations and varying degrees of usefulness, but Compaq's 'docking station' represents a pinnacle. The LTE docks neatly in the top of the unit and locks home. The expansion unit has two 16-bit slots and room for two half-height storage devices – with a network card and an additional hard disk, this is a very flexible solution.

Compaq can also supply a full-size VGA monitor (which sits on top of the dock) and a keyboard. This means the travelling user can take the notebook to the field, bring it back to the office, plug it in and have a 20MHz desktop machine ready to go. This feature is going to save many companies a lot of money – there's no need to buy both desktops and portables for those whose work is split between 'inside' and 'outside'.

In addition to the Ram cache, the apparent speed of the '386s is enhanced by what seems to be a very fast video controller. Unfortunately, this demonstrates a shortcoming in current LCD screen technology: ghosting, which can be both irritating and tiring if you are working with software such as spreadsheets where large portions of the screen change frequently. The screen is as good as the best we've seen on a portable, but it could still be better. That detracts little from the aspect that most impressed us – the overall flexibility of the concept.

Compaq's Systempro. At the other end of the spectrum is Compaq's new EISA machine, powered by a 25MHz i486 with 8Mb of Ram (expandable to 100Mb) and a fast 128K Ram cache. This wasn't the first '486-based EISA machine on the market, but it's notable because it comes from the driving force behind the consortium that chose to take IBM on in the standards stakes. Compaq has been positioning itself to be seen as the company that sets the standards, with particular emphasis on technology rather than simple box-shifting. While the company's marketing efforts have certainly contributed to that, it's the engineering that makes it a sustainable claim.

We offer the Awards as a service to users, a guide to the best of what is currently available off the shelf.

Right across the range – from the tiny LTEs through the new diskless workstations to the multi-processor Systempros – Compaq computers are recognised as quality. There's a price to pay, though: for the ordinary buyer, none of these machines can be regarded as an inexpensive solution, but they *do* represent the state of the PC art. Whether you can justify the expense of a Compaq or not, comparing them with other similar market offerings is a good way to rate the alternatives.

Any machine that is going to apply the potential of the '486 needs to be optimised for performance – and Compaq is good at that sort of fine-tuning. And, improved performance is what the EISA 32-bit bus is all about. The machines in this class will most commonly be used as multi-user systems and network servers – with these applications, one of the first limitations users strike is in the speed of the data bus. The combination of EISA, Compaq's bus-master and other refinements have raised that limit quite a bit higher. If you can see your need for computing power growing strongly in the future, this machine represents the direction in which you should look.

Hewlett-Packard's LaserJet III. The LaserJet range has defined laser printing standards for the PC ever since its release back in '86. It's not often that we consider anything but PCs in this category, but occasionally there is a hardware product that is so outstanding that needs to be considered – and the successor to the much-emulated LaserJet II is one such. Non-impact printers such as bubble jets and lasers represent the future of hard copy – these machines aren't fast by 'impact' standards, but their graphics capabilities are needed to keep pace with the increasing sophistication of software and hard copy applications.

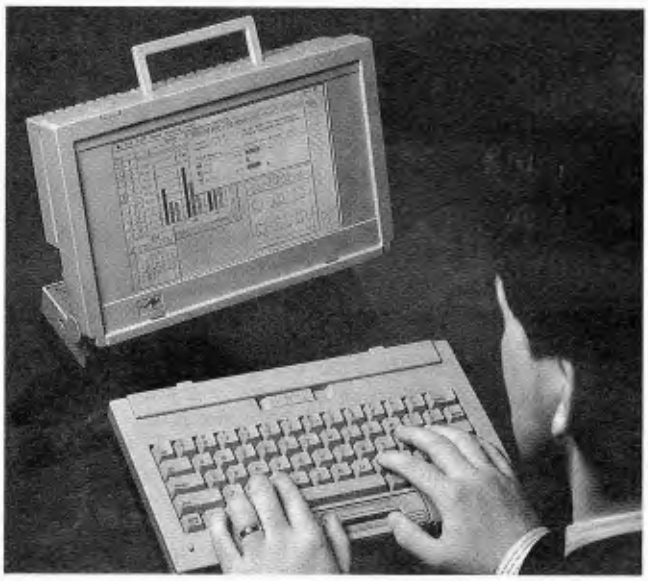
Built in to the III is a new page control language (PCL 5) which incorporates vector graphics, making it possible to stretch, overlap and rotate fonts as well as scale them. Fonts can be scaled from 0.25 points (that's only a bit bigger than the decimal point) to 999 points (about the size of this page).

As crisp as laser output can be, it still hasn't been of the quality that camera art used in professional publishing demands. With the III, HP have made significant headway in that direction: this is still a 300dpi (dots per inch) printer, but there is now a proprietary 'resolution enhancement' circuit that modulates the laser beam in the print engine. This gives control over the size and placement of individual dots at the edge of graphics, characters included. The result is the crispest printing you'll see this side of a 1000dpi typesetter costing ten times the price of the III. Since this is a machine designed with graphics output in mind, HP went to work and improved the throughput over the II series. The printer is rated at a misleading 8 pages per minute – on print runs featuring complex graphics, the speed is much quicker that that sounds.

To indicate just how serious Hewlett-Packard takes this market, the III was introduced at a price that was several hundred dollars under that of its predecessor. Watch for a rash of new, similarly featured lasers early in the year – HP has quickened the pace and the 'emulators' will have to jump to catch up.

IBM's System/6000. Like most users with an eye on the latest offerings, we're finding it more and more difficult to draw the line between personal computers and their 'bigger' siblings. This year the line seems to fall just above the bottom end of IBM's new range of RT replacements, the RISC-based System/6000 (and between the single- and the multiple-processor offerings of companies such as Compaq, Wyse and NCR). The face that Big Blue lost in the workstation market with the original, clunky RT-series is firmly back in place and threatening the processor intensive graphics workstation market (at the right price, too).

This is the arena of power computing: the base model 320 offers 28 million instructions per second (compared to an 8MHz AT's 1 million or so). While the 6000s are at home with graphics intensive applications, this and similar 'technical' markets are only a small part of the market IBM is trying to address (albeit, this is the one that will make or break the range's reputation). The second genera-



Outbound's Laptop System: This well-thought and innovative solution for mobile Mac users deserves all the success it will undoubtedly find.

tion RISC (reduced instruction set computer) processor in the 320 is a seven chip 32-bit superscalar CPU and has in the order of 6 million transistors built-in in (for comparison, the '486 chip itself has about a million).

There are separate units for floating point, fixed point and instruction branching; these work in parallel, executing up to five instructions per clock cycle. This parallel processing is what gives the 6000 range its 'power' – the implementation of RISC used here isn't all that reduced by CISC (complex ...) standards. To further reduce bottlenecks in processing, there is full 32-bit memory addressing (capable of handling up to 4 gigabytes of real memory and up to 4 *million* gigabytes of virtual memory) and an enhanced implementation of IBM's Micro Channel Architecture (MCA) which allows data transfers in bursts up to twice as fast as that found in the PS/2 MCA machines.

While the graphics processing abilities of the 320 and its bigger brothers are phenomenal even by '486/860 standards, IBM's intentions in the distributed processing market is made clear by the built-in support for optical links between systems, which we should see implemented in the next 12 months. This will allow transfers at up to twice the speed available with current networks. The speed and file handling features of the new operating system, AIX 3 (which now has a dynamic file handling system), are also designed for network users.

The System/6000s not only represent a landmark for Unix-based systems, they indicate just how much power can be made available on a desktop.

Outbound's Laptop System. Macintosh users who need portability now have an innovative alternative to the Mac Portable: Outbound's Laptop System. Apple has spent a lot of time defending its Roms in court and done a fine job of ensuring that there are no Maclones – whether or not there was long-term wisdom in that approach, only time will tell. But in the short term, users have had to pay a premium for Apple hardware. The new range of desktops were certainly a step in the right direction, but it could well be a case of too little too late, so far as the business market is concerned.

Until the release of the Laptop System, legal users of a portable Mac were restricted to Apple's own offering, which was seen by many as an overweight, slow performer for the price asked. Outbound circumvented the Rom problem by not supplying them – the idea is that buyers already have a Mac Plus or SE and want to add portability to their computing options. The Roms are transferred from the desktop machine, giving a fully functional portable; of course, the desktop machine now needs to have the Laptop docked to work, but that is not necessarily a disadvantage – as mentioned in the discussion on the LTE, there is a real market for machines of this nature.

Apple is aware of the shortcomings of their own portable and seem to see the Outbound offering as a temporary plug to slow the flow of travelling users away from the Apple pond. (Both Apple and IBM, whose own portable is hardly a rampaging success, are rumored to be seeking a Japanese partner for future developments in this market.)

Outbound is offering more than just a Rom-less clone, however. It uses a 16MHz 68000 (the same as the Mac Portable), but can be configured with a battery-backed Ram disk that gives much faster speed when using applications; up to 16Mb of Ram is catered for. While a mouse is optional, the built-in pointing device, called an IsoPoint, is a more elegant solution for portable users who often run out of space to move the mouse (or don't have any in the first place, as is often the case outside the office). The IsoPoint is built into the case, just in front of the space bar – picture it as a pencil that can be rotated and and slid from side to side.

The pointer is moved vertically by rotating the pencil and horizontally by sliding it; selections are made by depressing the spring-loaded 'pencil holder'. It's not an ideal solution for heavy mouse users (moving the pointer at anything less than 90 degree angles takes two separate movements: one up and the other across, for example) but it has definite advantages, including not having to take your hands off the keyboard to point and shoot. On the subject of interfacing, Outbound has packaged the System with a detachable infra-red (cordless) keyboard, which greatly adds to user convenience.

Two welcome bits of less that are standard with Outbound's unit are the weight (about 4.5kg, compared to Apple's own 7.5kg luggable) and the price, which is in about the same ratio. On the other side of the coin, battery life is less than the Portable and the screen doesn't offer the same sharpness. That aside, this is a well-thought out approach for users on the move and it deserves all the success it will undoubtedly find.

Those are our hardware Finalists, drawn from the best that 1990 had to offer: Commodore's multimedia platform, a flexible portable solution and a high-end performer from Compaq, a new standard in laser printing from Hewlett-Packard, a pace-setter from IBM and a welcome addition to the Mac world. That's the most diverse selection of Finalists we've ever seen – eliminations aren't going to be easy ... but that's next month's story.

Software Finalists

IBM-COMPATIBLE software is finally reaching the sophistication seen on other platforms – users now have hardware available to them offering ample bang for bucks and 1990's crop of releases made good use of it. For the first time, packages that run on an Intel platform have as friendly a face as you'll find on a Mac,

Amiga or Atari. It will be some time yet before it becomes apparent which interface will dominate, but whether it's OS/2, X/Open, Windows or a product yet to be released, applications will never be the same again – we have now come to expect hassle-free import and export, a consistent set of commands, intuitive procedures and meaningful use of colours. While we're still awaiting news on the last of the old year's releases, here is our selection at press time –

Asymetrix' ToolBook. Occasionally an entirely new type of application is released, defying tradition and not fitting into any of the old categories. Apple's HyperCard was one such, and, Asymetrix' ToolBook (which runs under Windows 3) is a second entrant in this unnamed category – they can probably be best described as 'environments for application development'. While IBM users have had to envy the Mac's HyperCard, ToolBook now offers them more: colour is supported, windows can be any size and there is a debugger for the programming language, OpenScript, for example.

When HyperCard was released, the reaction was 'Wow! But what can it be used for?' Within a short time users discovered what a powerful tool it could be, assembling applications as diverse as catalog publishing, teaching history, tracking source material and generally automating any number of tedious tasks. With the ground broken, ToolBook should take off even more quickly.

It is not a crippled applications development system: it's full-fledged and has the power and flexibility to demonstrate it. The very English-like OpenScript has over 600 commands, key words, functions and constants that can be used to facilitate scroll bars on text screens, buttons that recognise the mouse cursor, animated sequences, dialog boxes, dynamically updated displays ... virtually any feature associated with the Windows environment. In addition to hypertext links between different categories of data, dynamic data exchange (DDE) between applications is also supported. The features that ToolBook offers (and even inexperienced users will find them easy to master), are going to keep developers at all levels busy for some time to come, quickly creating applications across the spectrum, from straightforward educational material to sophisticated data management.

Autodesk's Animator. We've all seen paint and animation software, but Animator takes the art colourfully forward several frames. There is a choice of 26 ink types with a choice of solid, translucent and graded, plus control over dithering and strength, and 22 separate drawing tools. Even without its animation abilities – the real strength of the program – Animator's colour handling and image effects make it a must for many design applications. It can show 21,000 mixes from a palette of 256 colours and even find a 'best fit' for colours if a drawing's palette is changed.

The animation features take it well into the world of high-end presentation graphics, not quite to the realm of hypermedia, but it does offer a preview. All this power takes time to learn, however, and anyone who expects to produce a feature-length presentation with animated pie charts an hour after installing the package, is going to be disappointed. But once the host of features is mastered, users will be amply rewarded with the top quality appearance of their creation. In addition to a number of 'professional' drawing tools and effects, Animator offers five different methods of adding movement, including colour cycling, frame by frame, using cels and tweening, in which the user only needs to draw the first and final shapes of a sequence and the software fills in the gaps, given a number of frames.

This is one package we'll be seeing much more of – and we probably won't even notice it most of the time!

Today, the ogre of incompatibility rarely raises its head – every clone can run Flight Simulator and drive an Epson printer.

Borland's Paradox 3.5. At first look version 3.5 of Paradox, Borland's relational database system, seems little changed from its antecedents, but under the hood, are some very modern features. The most noticeable of these is the improvement in speed, courtesy of VROOM – Borland's virtual object-oriented memory manager, first seen in last year's Finalist, Quattro Pro; it automatically uses all available extended or expanded memory and intelligently swaps hunks of code in and out of this space.

Another optimising feature is the new TurboDrive that configures Paradox automatically to make full use of the system it's installed on. Paradox has yet to knock dBase off its perch, but the inclusion of SQL Link in this version should give it a big boost. It's a separate interface to data on an SQL (structured query language) server: the software translates queries from Paradox to SQL and then returns the data to a Paradox table. Work groups using large databases on a network will find that much of the frustration has gone from their tasks.

Borland's Turbo C++. For several years now we've been hearing that object-oriented programming was the way of the future. Developers, however, stayed away from the field in droves; it was easy to appreciate the concept behind it, but finding an efficient tool to implement those concepts was a different matter. Then came Borland's Turbo C++, which takes AT&T's object-oriented language (release 2.0) and adds an enhanced version of the Integrated Development Environment (IDE) first seen in Turbo C. The IDE is a shell with comprehensive windowing features, including scroll bars, zooms and clipboards.

Borland has incorporated VROOM here, too, allowing any number of windows (up to the hardware's limits) to be open. One thoughtful feature is that text entered into a dialog box, can be re-used by scrolling through a list. C++ offers programmers the ability to write highly-flexible, powerful and friendly software – Turbo C++ gives them the tools.

Corel System's CorelDraw! The first release of CorelDraw! was the best drawing package we'd seen on a PC. The latest incarnation, version 1.2, adds features that put it under the spotlight. The most notable of these is Corel Trace, which converts any bitmapped image into vector graphics (and does all the tracing automatically). This makes the resolution of the image device independent so that smooth curves and lines stay that way, regardless of the enlargement. Corel Trace easily handles complex images and does it faster than any similar tracing utility we've seen.

For other users, the addition of 11 import and export filters may be more important – the package can now be used directly with most word processors, DTP and other graphics programs, including many for the Mac. These and a wealth of other features, such as Pantone colour support, the Windows font conversion utility, the customisable hypertext help system and

the preview options, make CorelDraw! a bargain for illustrators of all hues.

Informix' Wingz for the PC. Now that there are full-functioning GUIs in the Dos world, we will see more and more software ported from the Macintosh world. In 1988 we chose the original Mac version of Wingz as our Software Product of the Year. We still think it is the most flexible spreadsheet system we've seen and were pleased that the Windows version is little changed in functionality. The power and flexibility of the package make it immediately useful to new comers, while giving high-end users a broad range of features, from programming (there's a built-in language, HyperScript, which can be used with C routines) to presentation quality output.

While Wingz has some limitations as a spreadsheet (3D views of data require a 'workaround', for example), there are few as a presentation package or report formatter for tabular data. The range of graph types available is extensive with the inclusion of wireframes, contours and polar graphs. Wingz includes a useful set of drawing tools; the creations from these, and any other graphic or 'special' text, float on the spreadsheet so they can be grouped as wanted. Wingz is a multi-faceted tool that can be used to good effect whether writing standalone, customised applications with many chores automated, to making clear presentations from a wealth of numbers.

Microsoft's PowerPoint. There are any number of packages and add-on modules for creating Dos presentations, but PowerPoint brings intelligence and friendliness to the genre (it was also originally a Mac release). Unlike most other packages designed to create and show 'slides', this one works with the presentation as a whole, rather than treat it as an assembly of separate entities, strung together with a batch file. This concept is carried throughout the package, starting with the Slide Master feature. This allows a single user-defined master format to be applied consistently across presentations; the master can include a background colour (that brings up a palette of matching, designer colours), text (there is a selection of Bitstream fonts and an MS Word-like editor), or logos and other drawings.

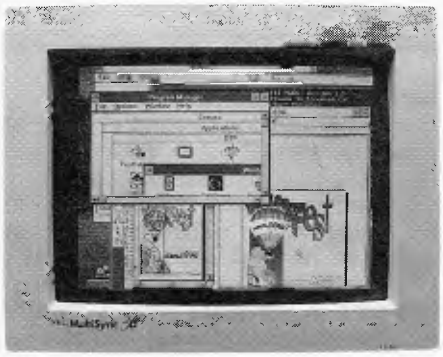
A set of practical templates and clip art images are part of the package as is a well-supported graphing facility that allows the data and chart to be onscreen simultaneously. Speaker's notes can be quickly created, complete with miniature slides and annotations, and handouts, with up to six slides per page, are just as easy. Communicating ideas simply, given the amount of data we often need to work with, has never been more important in business, and PowerPoint makes it easy.

Raising consciousness

ALTHOUGH CERTAINLY not in the running for an Award, another program needs to be mentioned here because of the far reaching affect it has had on personal and corporate computing practices: the Stoned Virus. This insidious little piece of code and its ilk have made us all aware of how 'fragile' our computing world is – those of us who had always thought of the PC world as a friendly one, were suddenly compelled to treat every 'foreign' disk as suspicious; shrink-wrapped, original program disks are just as suspect as games pirated from the bloke sitting at the next desk.

While I can hardly condone these programs or say nice things about their authors, they have had a good affect on computing practices. Users have become data security conscious like they have never been before – this has even carried on down the line to cause a burst in uninterruptible power supply sales as users gave serious thought to security practices and the value of their 'data'.

Microsoft's Windows 3.0. The previous versions of Microsoft's graphical environment for Dos were full of promise and problems and suffered from a lack of applications that could take advantage of the interface. The promise has now been largely realised and the problems minimised with Windows 3.0. If you are looking to the future today, a commitment to Windows will give a solid base to build from: now that Microsoft and IBM are independently responsible for the development of Windows and OS/2, respectively, you can expect to see many of the high-end features of OS/2 appear in Windows. Also, Microsoft has declared that it intends to eventually make Windows a common development environment for both Dos and OS/2 applications.



Microsoft's Windows: *A friendly power shell for Dos.*

Today, Windows gives Dos users a 'common' interface that imparts a logic to the software running under it – the previous lack of that logic has made it a struggle for many users to master software. As a bonus, there is a set of useful accessories and file handling features that will make life simpler for many of us. Earlier versions often crippled applications that needed loads of memory, but in 3, this has been corrected with improved management and the option of a 'swapfile', a designated portion of the hard disk which the program uses as a temporary cache.

Achieving the full range of benefits Windows has to offer takes a dose of 'advanced' knowledge, but many of its most productive features are immediately available to anyone who has mastered a mouse.

As you can see, our software selection is just as diverse as the hardware: an environment for application development, a powerful animation tool, a relational database for workgroups, the solution for object-oriented programming, a full-featured drawing bargain, a graphical spreadsheet, a logical presentation tool and a friendly shell. Regardless of which is awarded Software Product of the Year, they have all contributed to the quality of computing.

We had listed two other 'environments' for inclusion here: Digital Research's Dos 5 and IBM's OS/2 1.3. DR's new version of its MS-Dos alternative eliminates much of the horror users need to face when working at the dreaded system prompt and incorporates a number of worthwhile features. For example, multiple options can be written into the autoexec.bat or config.sys file, each preceded by a question mark; at boot up, the user is asked if the option is to be run. Unfortunately, we can't say much more about it – the distributor grabbed the package back within days of our receiving it. IBM's OS/2 answer to Windows sounds as if it may be approaching maturity – amongst the claims is that it is '25 per cent faster' – but almost a month after its release, we have yet to see a copy, despite numerous requests.

Next month the Winners, plus Commendations for Australian Hardware and Software – these also feature plenty of 'communications' expertise. □

How can Software only cost $5?

IT'S SHAREWARE!

Look at the ads! Any number will tell you that you can buy software for your IBM PC or compatible for only a few dollars. Well, you can't believe everything that you read. These $5 (or $4 or $7 or $10 or whatever) disks are only for you to evaluate the software - if you wish to use the software you must pay more to the author. This is SHAREWARE and it has revolutionised software distribution.

How it works

Shareware relies upon the honesty of the users of software to pay for the software which they use. To continue using the $5 (or whatever) disk is a breach of copyright in the same way as using a pirate copy of other software.

The great advantage of Shareware is that potential users are able to evaluate a product at little or no cost and then only purchase, or register, if they intend to continue using the product. Registration varies from $20 to $200, and because the conventional marketing channels are by-passed this is exceptional value.

Shareware users are even encouraged to copy their software and give a copy to their friends so they too can decide if they would like to use the product, and of course then pay for it.

Word would spread slowly if the author solely relied upon users just sharing copies with their friends. User groups are encouraged to share the software with their members on a non profit basis. Many user groups set up Bulletin Boards so that members can "down load" software which they would like to evaluate for use. This is another accepted way of distributing shareware.

Some commercial operations also distribute shareware and charge for the disks. The more they can sell the more profit they make so they encourage you to buy the evaluation copies and sometimes "forget" to tell you that if you want to continue using the software that an additional payment is required.

It is fine for these commercial operations to distribute Shareware as long as their ads clearly state that the additional payment is required. Software for $5 is just too good to be true!

What is Public Domain Software?

Public Domain software is created by authors who chose not to seek formal rights or royalties. There is no restriction of any kind on distribution of this kind of software. Most public domain software is games or utilities. There are very few complete products in the public domain.

Shareware software on the other hand is distributed so the user can evaluate the software to decide whether he will register with the author and continue to use the software.

Shareware is an alternate method of marketing software, not really a different kind of software. In fact the more successful Shareware products hold their own against their commercially distributed competitors. The greatest difference is that the Shareware product's packaging is not as fancy and the price is much lower.

Where can I obtain Shareware trial disks?

A collection of disks is generally referred to as a Library. A Library may be kept by a user group, a bulletin board operator or by a commercial diskette distributor.

Some education establishments, companies and government departments have a library on a CD-ROM (a large capacity read only disk drive using compact disk technology) and allow students to make copies at no or at a very low cost.

And of course it is quite acceptable for your friends to give you copies of Shareware software that they may be using or have evaluated.

The only restriction is that if you decide to use the software then you should register so that the author is rewarded for his work.

Do I need to join a Library?

Some commercial libraries and most user groups insist that you join before you can purchase disks. If you intend to purchase disks a properly prepared catalogue will make your selections easier and repay your membership costs many times over.

Other libraries allow purchases without any membership fees and some offer a free catalogue. The free catalogue is usually a very short description of available disks and is often given away as an insert in magazines. Of course there is no such thing as a free lunch — the brief descriptions in free catalogues mean that you will invariably purchase more disks than you really need. The descriptions are so short you really are taking a lucky dip!

What is PC-SIG?

PC-SIG is the world's most respected Shareware Library and contains well over 2000 disks. PC-SIG does NOT require you to become a member to purchase diskettes but is the leading publisher of information on Shareware. PC-SIG also makes its Library available on CD-ROM for companies, educational bodies and government departments.

Every two months SHAREWARE magazine is available in newsagents at around $6.50 a copy. The magazine describes new additions to the PC-SIG Library, has comparisons and reviews of available products as well as regular columns. The magazine is also available on a subscription basis at $20 per annum, a saving of $19.

"The Encyclopedia of Shareware" is a two volume catalogue with detailed descriptions of the disks in the PC-SIG Library. To make finding the disks you require as easy as possible the disks are grouped by category with extensive indexing. The two volume set is available at selected bookstores and computer shops at $39.95. If you choose to subscribe to SHAREWARE magazine for just $20 you can purchase the ENCYCLOPEDIA for only $29.95, a further saving of $10, and the post and packing is FREE.

For a total of only $49.95 you will not only have the best reference work available but you'll be kept up to date for a full twelve months. As a further bonus we offer special discounts to subscribers BUT you do NOT need to be a subscriber to purchase disks. There is no minumum purchase. Our regular prices for trial disks are - single disks $13, any five disks $50 and then additional disks in that order for just $5. Remember though it is easier to select the disks you would like if you have the two volume Encyclopedia and the magazine.

Can Software be Registered in Australia?

PC-SIG's distributor in Australia, Manaccom offers the full PC-SIG Library and also has arrangements with many authors to represent them in Australia. Yes, the complete registered copies of the best available Shareware products with manuals, telephone support and access to upgrades right here in Australia.

How Good is Shareware?

Registered shareware is used by government departments, corporations and individuals right across the country. There is a full range of products from educational games, to databases, spreadsheets, wordprocessors, accounting systems, and specialised applications. One of the products we distribute was selected against all comers as the best value communications product by the readers of PC-World magazine.

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☐ I would prefer to save $29 from bookstore prices and subscribe to "Shareware" magazine and to have the two volumes of "The Encyclopedia of Shareware" for just $49.95 with FREE post and packing.

☐ No, I don't wish to subscribe to "Shareware" or to have "The Encyclopedia", but I would like more information.

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COMPUTER OBSERVATIONS

Peter Spencer takes some of the mystery out of things computer-ish for intending purchasers and novices . . .

I HESITATE TO write down rules for anything, but here are some observations which might help those thinking of buying a computer, or even those who have bought one and become thoroughly frustrated. I teach and help colleagues who have problems with computers. One day a friend came to me with a problem: 'I have had an essay for 150 boys marked by two people, and I believe that marker A has marked harder than marker B. Is it possible for the computer to calculate the mean for the essays marked by each person and adjust the scores so that the results are fair?'.

'Sure,' I said, 'provided that the two groups were of approximately equal ability to start with.' 'No problem,' he replied. He then presented me with a long list of names and marks. 'Wait a bit,' I said, 'which students were marked by which marker?' He looked puzzled. 'I don't know that, can't the computer work it out?'

Hence observation one – computers aren't psychic. If you don't know how to do it, then neither will a computer.

This is followed closely by observation two – if you can't describe how to do it, then you won't be able to persuade a computer to do it. Failure to grasp this simple fact is the basis of many misconceptions about computers. We do many things without any clear idea of how we actually do them. How do we remain upright when we walk down the street? How do we recognise a friend's face? How does one memory trigger a host of associated memories some, perhaps, not recalled for decades? Computers are very good with tasks such as 'in this list find all the names starting with S' and not so good at tasks such as 'check this sentence for correct grammar' or 'invest my life savings to make me lots of money'.

Computers are best used for boring tasks that any human would not even consider tackling if they could possibly avoid it. Things such as sorting 1000 names into alphabetical order, or taking 5000 numbers and multiplying them by 1.15, or addressing 2500 envelopes. These are simple tasks and the computer does them well because it wins hands down when it comes to speed and repetition.

Computers are very quick which means that they can do mundane tasks such as sorting names into alphabetical order, or retrieving data from a large database, or compiling an index for your latest masterpiece. It also means that they can compound mistakes more rapidly than any human. One of the precipitating factors in the stock market crash of October '87 was the rapid selling, by computers, of large quantities of stock onto an already falling market. The fault was with the program design, but 'computers' took the blame.

Computer intelligence

COMPUTERS ARE very dumb. If you asked a five year-old child to go to the next room and bring you a book, and the child crashed into the wall because you hadn't bothered to say something like 'turn left, take five steps, turn right, and open the door' and so on, you could rightly assume that the child was a little slow on the uptake. But this is how computers function *all* the time. They never make decisions

unless they have been carefully programmed to do so. However, if they're poorly programmed, they'll do incredibly stupid things. Any program you have which appears smart, is reflecting a lot of effort by a smart programmer.

There is almost no such thing as computer error. Almost all errors are caused by something that the operator or programmer did or failed to do. Disk drives do fail, data transmission does sometimes scramble data, chips do burn out, but when these sorts of problems occur, the result is usually obvious failure of the system. The failures which are potentially catastrophic are those which are subtle and infrequent and produce no obvious warning signs in the system. These often result from the failure of the programmers to fully realise the consequences of a particular action.

If you want to see these bugs in action, then buy almost any commercially available program. There is not many which do not fail occasionally, but sometimes the failure crashes the system, and sometimes it provides only a minor annoyance. The wonder is, not that all programs sometimes fail, but that they don't do so more frequently. Incidentally, if you want an argument as to why Star Wars is not a good idea, then this is it.

If you don't need a computer to do a job, then don't use one. When personal computers first became a possibility (around 1977) there were predictions that every home would soon have a computer, but what would they be used for? The hot favorites were for mum to keep her recipes and for dad to balance the family cheque book. This says something about the sexist attitudes of the '70s, and also about the lack of imagination of those trying to sell computers. I suppose there is a home somewhere in Australia where mum does keep her recipes on the family Apple (or Atari or whatever) and dad does use it to balance his cheque book, but the majority of us have by now realised that these are not tasks which require a computer. A while ago, the Japanese managed to produce a handheld computer which allowed you to write on its display screen with a special stylus and store the resulting note for later recall. Thus, for only a couple of hundred dollars, you could buy a machine which duplicated most of the functions of a note pad and pencil for keeping recipes, balancing cheque books and maintaining a personal phone book.

More personal computers are used for wordprocessing than for anything else. If you produce more than a page or so of words a day, then a wordprocessor will be a boon for you. If you don't know what a wordprocessor is (and don't fool yourself, if you haven't used one, you won't fully understand the capabilities), then find out. If you use the written word a wordprocessor is magic. Even if you are only a hunt and peck merchant, then it will let you produce professional looking output at a surprising speed.

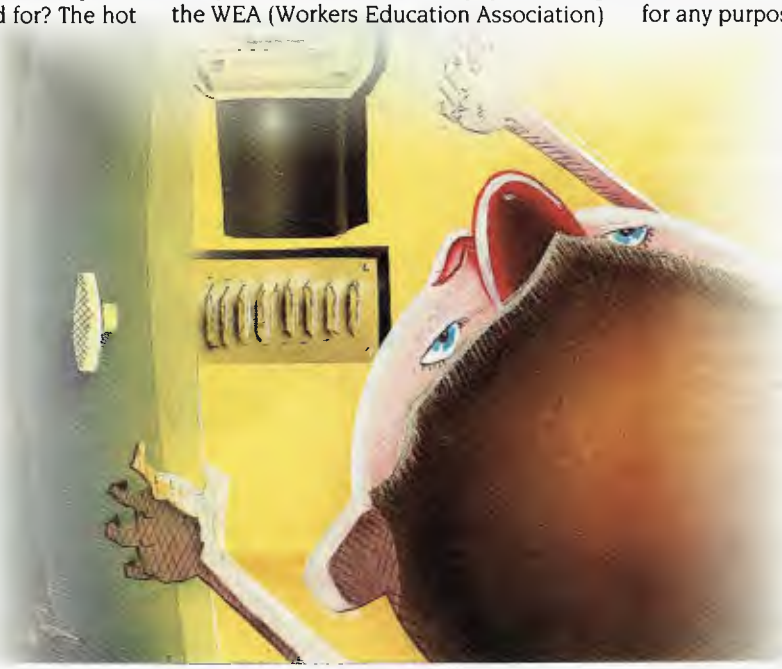
Beware – no computer is really beginner-friendly. Some are beginner-tolerant, while others are actually vicious to beginners and long-time users alike. If you intend to use a computer, you must be prepared to spend some time learning the skills required. Time invested early on in learning about the computer will repay itself many times over – even driving a nail requires some practice. For my money, the best way to learn is by close attention to the manual while sitting at the computer, but not everyone agrees. If you find yourself intimidated, just repeat, at frequent intervals, 'this is a very stupid machine'. Training courses are available – check the computer section of a local paper, or ring the WEA (Workers Education Association) in your state capital.

You get more of a computer for $5000 than you do for $500. If you intend to use a computer for serious work, then you are going to have to pay for it – about $1000 is the minimum, and this rises rapidly to over $10,000. A computer is of little use without a printer ($500 to $10,000, but the $10,000 buys a top quality laser printer) and, if it is to be used for business, of very limited use without a hard disk drive which start around $500.

A computer can, and probably will, change your work habits as it will permit you to do things that you couldn't or wouldn't have done before, like writing every Sunday evening to your maiden aunt in Queensland, or checking the turnover and gross profit for your business at the end of every week, or producing a newsletter for your club (watch this one, it could take hours).

Computer reps

COMPUTER SALESPEOPLE generally don't have the time (nor, presumably, the inclination) to learn a great deal about the machines they sell. They seem to have even less time to learn about software. Still, when you buy a car, you don't expect the salesperson to have the knowledge of an engineer, and you certainly don't expect them to teach you to drive. Yet, many buyers expect that their local computer shop will know all about all the machines they sell, offer free training courses, and be able to recommend the best software for any purpose – they won't. It is not possible to be fully informed about software for just one machine (remember that new programs appear every week) and salespeople have things to do other than check out software. The best that a buyer can expect is that the salesperson will make helpful suggestions about where you might actually find solutions to your problems.



Don't buy a computer unless you have a good idea about how you plan to use it. This is not to say that, once you have the computer, new and exciting uses won't occur to you but, if you buy without a clear idea of what you wish to accomplish, you are unlikely to be content. □

VIRUS ALERT

Australian Business has recently had its attention drawn to a spate of infections occuring through computer viruses.

Originally created by computer hackers and intended to flash bizarre statements on the monitor as the system is turned on and off; today they are capable of breaking 'fool proof' security systems, before developing bequiling programmes, progressively more incidious and difficult to detect, to be introduced through both hardware and software.

There are, at present, over 150 known 'active viruses' in Australia, and over 220 known viruses throughout the world. Not surprisingly, over 80% of the above mentioned viruses are responsible for the crashing of systems and total loss of data.

Vaxination against viruses becomes the most important objective, since programmes are becoming more and more sophisticated, and adopt techniques that are capable of fooling systems into ignoring file disorders and alientations.

Virus Alert intends to keep you up to date with the virus problem, alert you of new active viruses, their symptoms and the possible damage, and suggest ways to not only eliminate them but to keep them out.

For your benefit, viruses will be divided into categories according to the affect and damage they do to the system, and whether they are memory or non memory resident. Furthermore, concern lies with those viruses capable of lying dormant in the system's memory, and the extent to which, upon awakening, it disrupts the host system (or network) and its files.

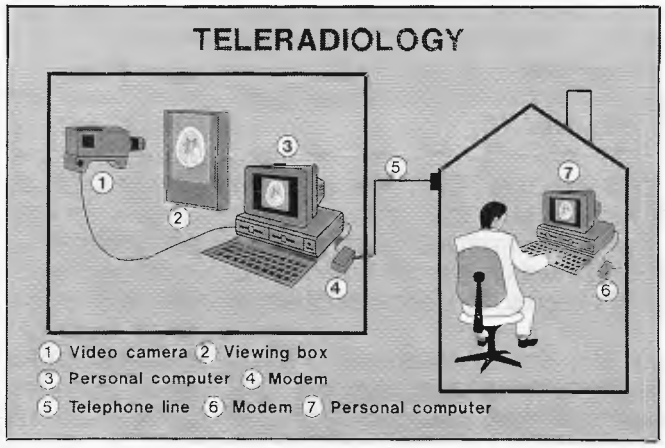
Destructive viruses are those capable of disrupting and damaging files and their data. While non-destructive viruses are known to merely replicate without damaging the files or data within the system. However, though it might sound contradictory, never assume a virus is harmless, even if it is known only to replicate. Supposedly non-destructive viruses such as the Christmas Virus, have been known to lie dormant 'dead' for long periods of time, before reactivating (in this case between December 24 and January 1 of any year) to cause a crash in the system. Those people annoyed by the interruption of their programme with a Christmas Tree, and then replaced their annoynce with good humoured remarks suggestive of the Christmas Spirit, were soon cursing the Christmas Spirit when their systems went down. Don't get caught. No virus is ever non-destructive, some are just more destructive than others!

No longer is it possible for a systems' manager to boast "Computer viruses, what are they?", because the most recent spate of infections have all too clearly left their mark on business. Viruses have found a back door, and with so many businesses pulling information down from bulletin boards, it's no wonder that the viral domino affect has started. What's more, when shrink wrapped programmes arrive direct from the manufacturer, with viruses in them, one wonders just who programmes the programmes?

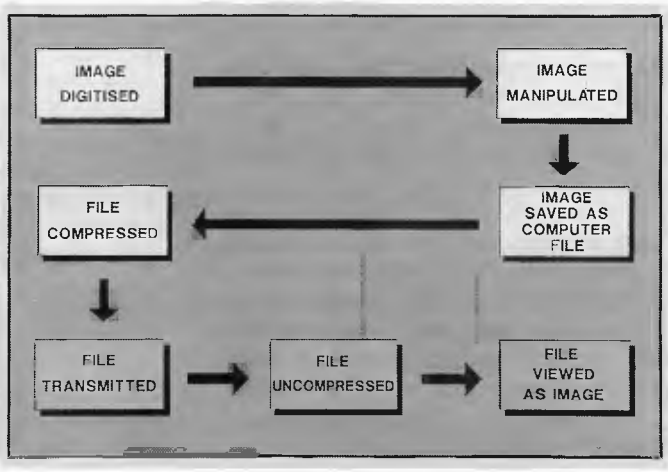
In particular, we warn of two viruses that are rapidly spreading throughout the world, and have recently been introduced into Australia. The Invader Virus and the Disk Killer Virus (reported to have been found in a copy of the programme 'Power Menu V5.3').

TELERADIOLOGY

Neurosurgeon Brian Bennett has developed a technique that may fundamentally alter the way doctors communicate.



A video camera is used to obtain a live video image on the computer's screen. The image is saved to the computer's hard disk, and is then transmitted to the receiver via ordinary telephone lines using a modem.



A hardware device known as a frame grabber takes the video signal and converts it into a form that the computer can process.

DESPITE EVER increasing technological sophistication in medicine, especially where medical imaging is concerned, distant communication between doctors remains almost exclusively verbal. In this sense there has been little change in medical telecommunication in over a hundred years.

Working with radiologist Richard Jackson, Brian Bennett has developed a low-cost efficient system of 'teleradiology' – the transmission of images over distances, which stands to vastly improve clinical communication, with obvious benefits to patients.

Many important decisions affecting patients are made around the clock by doctors who may be far removed from the scene. For example, many patients with severe injuries are transported from country centres to the Royal Melbourne Hospital every year. If X-ray and CT scan images were available to appropriate staff from the outset, then better-informed decisions about when, and how, and whether to transfer the patient could be made. Apart from enhancing patient care, teleradiology has the capacity to save thousands of health dollars every month by reducing unnecessary or inappropriate transfers, and by reducing wasteful or ineffective forms of treatment commenced in the remote setting.

Frame grabber

ALL THIS IS now possible thanks to the ubiquitous personal computer. Bennett has developed his teleradiology system around a small budget, using entry-level computer and video hardware, and simple software. A video camera is used to obtain a live video image on the computer's screen. This is produced by a hardware device known as a frame grabber, which takes the video signal and converts it into a form that the computer can process. The frame grabber used in this project was designed and manufactured by a wholly-owned Australian firm, located in Melbourne. The image is saved to the computer's hard disk, and is then transmitted to the receiver via ordinary telephone lines using a modem. The receiver also requires a computer with a modem attached, but does not need the camera or frame grabber to view the image.

In many ways, the teleradiology system functions like a graphic fax machine. The quality of image obtained is vastly superior to a 'faxed' image, and is certainly sufficient to enable accurate diagnosis in almost all emergency situations. Typically, a single image can be transmitted in about two minutes, and a series of selected images can be sent in rapid succession. There is no loss of data once the image is in the host computer, and there is no reason why an image cannot be sent from Richmond to Parkville, or from Parkville to New York.

The neurosurgery unit at the Royal Melbourne Hospital have avidly supported the project, and are all 'online' users. There have been expressions of interest from all over Australia. The Royal Flying Doctor Service sees an important role for teleradiology, especially in the Kimberley and Pilbara regions of Western Australia. Many neurosurgeons from around the country are likely to acquire teleradiology systems like the one developed here at the Royal Melbourne Hospital. Beyond neurosurgery, teleradiology has the potential to influence the practice of medicine and surgery generally, with certain benefits to patients. □

The names of the doctors in this article have been altered for ethical reasons.

SONIC BLASTER THE APPLE IIGS

The sound capabilities of the GS are now well established, but products taking advantage of this have been a long time coming. Richard Walding takes note of the Sonic Blaster . .

UNTIL NOW, THE only digitisers of note for the GS were SuperSonic and FutureSound – and both have been given extensive promotion in Apple's *IIGS and Music* booklet. Their major limitation was that even though they could play back in stereo, they could only sample in mono. To create stereo you had to sample twice in mono, and if you could align the tracks well enough, you would have simulated stereo. Applied Engineering's Sonic Blaster can playback and sample in stereo. It comes with some added features such as an oscilloscope.

The ads describe it as a 'full-featured stereo digitiser which records, amplifies and plays back in rich, full stereo'. It is also an 'awesome sound effects amplifier that'll knock your socks off playing great new IIGS games like Tomahawk...'I can't disagree with any of that: the sound from Akanoid II through an amp and big speakers is stunning. However, I bought Sonic Blaster for serious business – for my senior physics class.

Hardware installation

THE CARD FITS into slot two or if you want to, slots one or six. The mounting plate has two 1/8 inch stereo jacks – input and output, and is mounted into the back panel. The ribbon cable on the card is plugged into the 7-pin Molex audio connector on the GS motherboard. The volume pots on the card then need to be set depending on whether you're using the GS speaker or external speakers. If you have a modem in slot two, you can toggle between the two from the Control Panel depending what you want active. Then, installation is complete, but keep in mind that it is like two cards in one – stereo digitiser and stereo playback.

The software comes on two 3½ inch disks. One contains the program including sufficient GS/OS system files to run it, and the other is the Audio Art disk which has some of the most woeful digitised samples imaginable. They're 'from AE's extensive library', and if that's the best they can do, someone should be sacked!

The program runs in the ProDos environment, using super hi-resolution graphics, and the Mac-like interface makes the program's use intuitive. To playback a sound you merely click and drag down the File menu and open the selected file. A Sound Graph appears at the bottom of the screen. The Select Bar is a flashing line within the Sound Graph which enables you to choose the part of the file you want to play, and then just select Play. Play may be continuous or repetitive, and while playing, the volume and playback rate may be altered by using the 'thumb' slides. The default rate is 22,085Hz. Resolution tells you the ratio of how many sound samples per screen pixel are being displayed in the graph. A resolution of 1:1 means that every pixel represents one sound sample. By using the Zoom In or Zoom Out option in the View menu, this may be changed.

The Edit menu, which is easy to use, allows you to cut, paste and copy selected parts of the sound graph. The Effects menu enables you to amplify selected parts or to play them backwards, create a variety of echoes, to fade up or down, or to even create silence.

The recording ability of the card is most interesting. The Auto Gain feature enables you to have input signals from a pair of microphones (low-level), a line out from a stereo amplifier (medium), a stereo headphone jack or external speaker jack from a radio (high-level).

The Record Level can also be set using the VU meter bars on the screen or by choosing Oscilloscope from the View menu. The oscilloscope gives real-time feedback of the input and can show either Channel 1 or 2, but not both together.

Listening tests

PLAYBACK OF synthesised sounds is very impressive, however, recording is another matter. The analog-to-digital converter in the Ensoniq 5503 chip takes about 31 microseconds to read each sample, hence a maximum sampling rate of about 32KHz. But even though it can sample at 30368Hz in mono or 15184Hz per channel in stereo, it is certainly not hi-fi, no matter what you may have read. The ads claim a 'sound quality near that of a compact disk' but this is stretching the truth somewhat.

Audio engineers have a rule of thumb called the Sampling Theorem, which was formulated by Shannon in 1949 when he built on earlier work by Nyquist in 1924. Signals must be sampled at a rate at least twice the highest frequency (fmax) of the input signal otherwise high frequencies will masquerade as lower frequency signals (known as 'aliasing'). The rule of thumb is to use a sampling rate of 2.5 fmax. In digitally recorded music, such as that found on CDs, the audio frequency range of 20-20000Hz must be faithfully sampled. A Nyquist frequency of 40-50KHz is required. CDs are sampled at 44.1KHz per channel, that is a rate of 88.2KHz for the two interlaced channels, Digital Audio Tape (DAT) is sampled at 48KHz per channel, while the Sonic Blaster samples at 15.184KHz per channel. In mono, the sampling rate of 30.368KHz is more respectable but certainly below that of the Mac II

which samples also at 44.1KHz. The Mac is similar to the GS in that it uses eight bits to encode data while CDs and DATs can sample more faithfully with a 16-bit encoding.

To compensate for the lower sampling rate, the Sonic Blaster card has a low pass filter that cuts in at 14KHz so that all signals above this frequency are eliminated. The 30.386KHz sampling rate is thus more than twice this frequency and aliasing is prevented.

The lack of high fidelity is most apparent in the background noise (hiss) in quiet passages of sampled sound. It's not amplifier noise in case that's what you're thinking – when you paste 'silence' into a waveform it really is silent. The quality is OK for fooling around or for viewing waveforms of recorded music, speech or sounds. However, you can't use it to record your band's first song as it's not good enough. Don't get me wrong – it's still good sound but not good enough for some needs. You can always sample in mono at 30.368KHz, copy to a blank stereo file, edit both channels separately and playback fake stereo still at 30.368KHz.

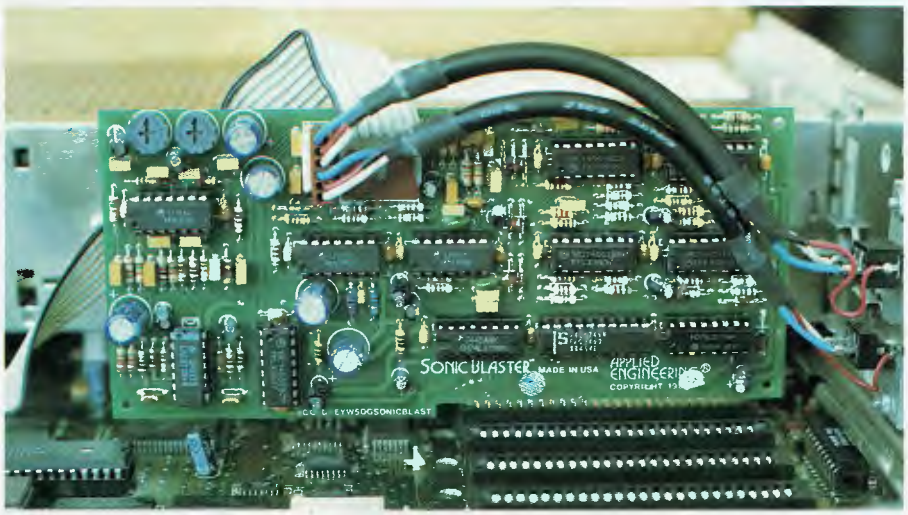
You need a GS with at least 512K of expanded memory (768K total) to run the program. To get any decent sampling time, a 1.25Mb GS is required. With the maximum free RAM available (522K for a 1.25Mb GS) and sampling at the maximum rate of 30.368KHz, only 17.2 seconds can be sampled. For speech, you could cut the rate to 7KHz in mono and get about 74 seconds. The program is able to save in a number of formats, including 2:1 and 2.67:1 file compression.

Some graphical tests

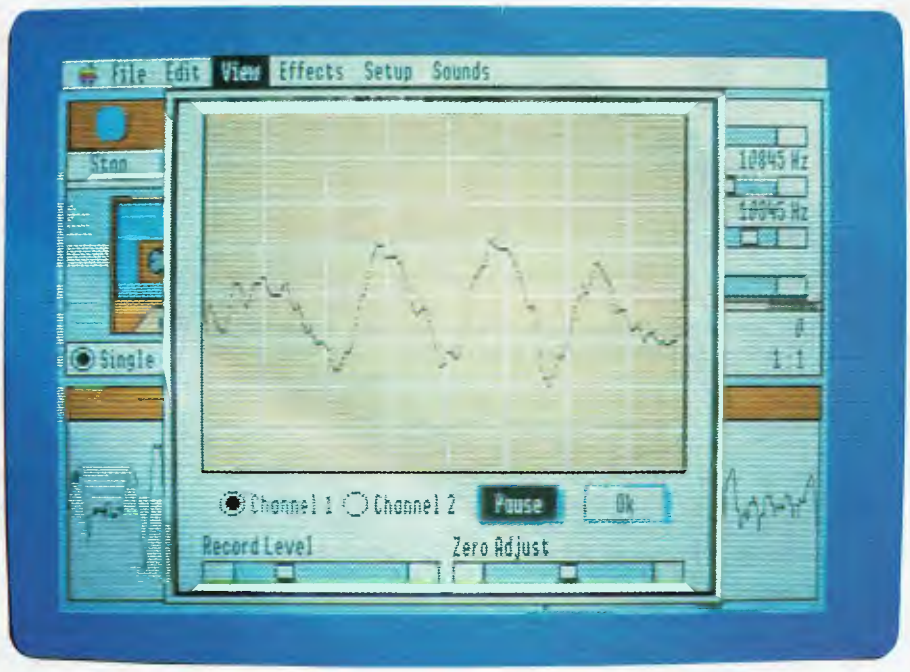
I SAMPLED A few seconds of a violin solo, zoomed in to display just a few waves, and was suitably impressed. When I compared the waveform to that of a standard violin waveform on the ConcertWare plus Midi program on the Mac, I was even more impressed. The bumps all appeared to be in the right places. If I tried to rig the sampling for my students, I couldn't have done any better.

The idea that there is a standard or correct waveform for any instrument is misleading. Depending on where the instrument is plucked, struck or bowed, which string and how hard, at what stage of the sound's life the sample is from, all determine the waveform.

Most sound consists of some fundamental frequency along with some multiples (harmonics). A pure tone from an audio generator has no harmonics apart from the fundamental. It is mainly the harmonics which make a piano sound different to a violin. Most sound is much more complex with many harmonics and noise, compounded by attack, sustain and decay curves as well as the resonance characteristics of the instrument itself. Not only does the amplitude (loudness) change during these three stages of a sound, but also the relative intensity of the harmonics. In *Sonics* magazine (February 1990, p66), Michael Spicer discussed the complexity of clarinet waveforms. Because they contain mainly odd harmonics in



Sonic Blaster can playback and sample in stereo – it is a 'full-featured stereo digitiser which records, amplifies and plays back in rich, full stereo' and includes a very useful oscilloscope. The card fits into slot 2 of the GS' motherboard, but could also be fitted to slots 1 or 6.



The oscilloscope with Sonic Blaster enables you to alter the gain manually or use the auto gain option and view the left or right channel. Also, a waveform can be frozen and that's something that can't be done with most CROs under $1000.

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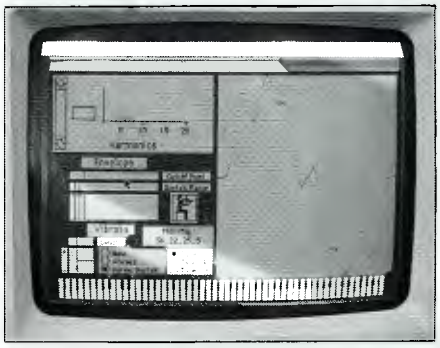


This is a sample of a few seconds of a violin solo, zoomed in to display just a few waves. Comparing the waveform to that of a standard violin waveform on the ConcertWare plus Midi program on the Mac, showed how impressive the system is.

their lower register but even harmonics in their higher octaves, they are difficult to synthesise, and when done, are usually done badly. As the frequency of the sound increases, he modulates the even harmonics exponentially while decreasing the odd harmonics exponentially. When this is done properly, a smooth transition and unnoticeable crossover results. It just goes to show that waveform analysis with the Sonic Blaster program is very basic, but also very useful. It would be great to be able to do Fourier analysis and breakdown the complex sampled waveform into its component sine waves.

The oscilloscope is great and you can alter the gain manually or use the auto gain option and view the left or right channel. But, best of all, you can freeze a waveform – something you can't do with most cathode ray oscilloscopes under $1000. You need a storage CRO to capture a waveform and review it later, however, the Sonic Blaster can only freeze a moment in time. But it too is limited. I fed a sine wave into the card and it went well up to about 2000Hz. After that, the sampling rate limitations showed and the waveform became incoherent. Jim Rowe, editor of *Electronics Australia*, argued that the Nyquist frequency for a CRO should be 10 times the maximum frequency to be sampled so you can distinguish between sine, triangular and square waves for a start (December 1989, p86). An audio sampler requires a CRO with a bandwidth of 200KHz, and even the cheapest CRO is about 6MHz.

I'm still impressed though, and it is very useful, particularly if you don't have a CRO. The first handful of harmonics in a one metre long PVC drain pipe are still within range and can be assessed easily. You can even look for nodal points in a pipe, as long as the auto gain is off.

To digress for a moment, Peter Phillips (*YC*, January 1990, p157) mentioned an Australian made stereo card he saw at the Apple Developer's Conference. The Sounds Alive card is produced by Power Up Technology – it's priced at $89 (including tax) and the company can be contacted on (07) 899 1180. I spoke to Joe Eltoff, one of the card's designers and saw the card in action. Originally, it was only going to be a stereo card, but there was some space on it so he added an op amp and a few resistors and made it a digitiser as well. While the stereo playback part of the card is similar to the Sonic Blaster, it can only sample in mono just like the SuperSonic card. The maximum sampling rate is 31.5KHz and the quality is close to the Sonic Blaster, perhaps marginally less. It is packaged as a card plus manual but no specific software. Eltoff supplies a very good public domain program called Sound Studio and a few hundred digitiser samples for six dollars. However, it does not have an oscilloscope.

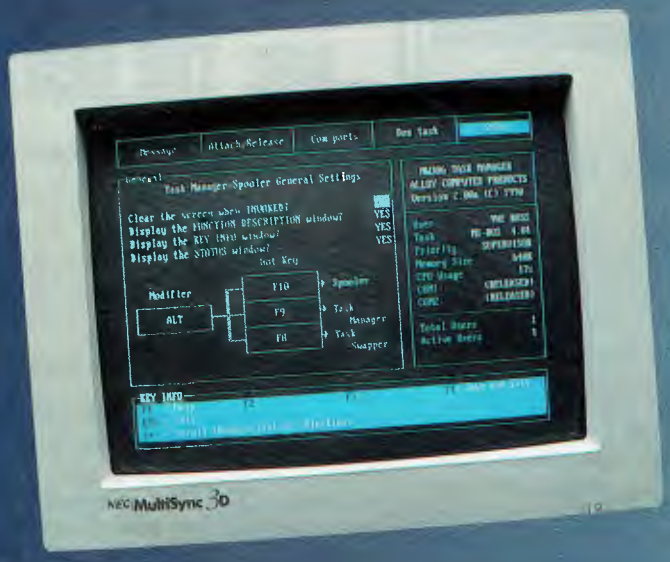
At the Developer's Conference, he was told by Apple representatives that he was wasting his time making a stereo card as Apple were about to release a stereo GS soon. The GS is not a stereo machine – it needs a stereo card. Eltoff went ahead anyway and we're all still waiting for Apple's pronouncement to come true.

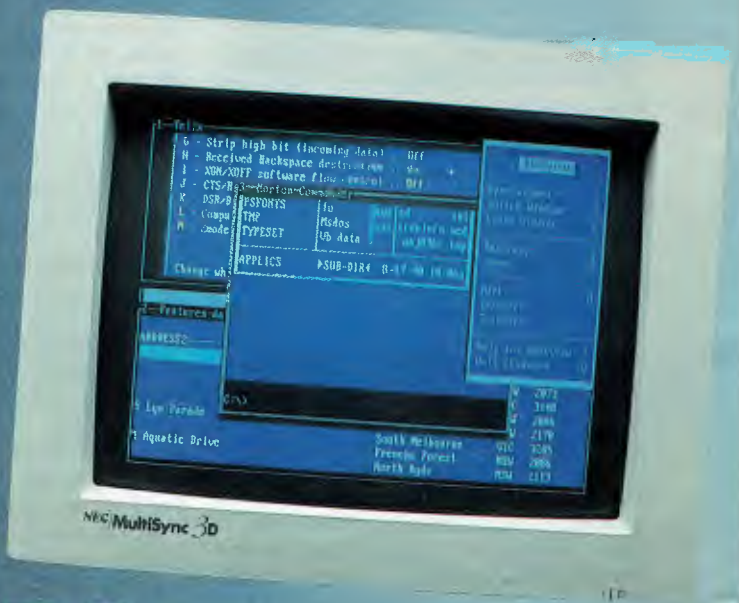
If you want to make your own card or read more about programming the sound chip, the book *Inside the Apple IIGS* by GS developer Gary Bond is hard to beat (Sybex $49.95). It has diagrams for both the stereo and digitiser circuits, hints for writing wave tables and a description of the sound tools. □

Product Details

Product: Sonic Blaster
Distributor: Logic Group,
6 West St,
North Sydney NSW 2060
Price: $300 rrp (consignment only).

The recording ability of the card is most interesting. The Auto Gain feature enables you to have input signals from a pair of microphones (low-level), a line out from a stereo amplifier (medium), a stereo headphone jack or external speaker jack from a radio (high-level).





OS/2 ALTERNATIVES

Looking for a multitasking operating system for your '386, but don't think OS/2 is the way to go? Mark Cheeseman road tests three contenders that make your '386 behave like several PCs in one box.

IF YOU HAVE a '386 processor in that box on your desk (or floor), and are only running a single Dos application at a time, chances are you're not using the machine to its full potential. The Intel 80386 processor has the ability to run several 8086 programs concurrently.

using the processor's virtual-8086 mode. In this mode, the '386 emulates several 'virtual' 8086 processors, each with its own memory, and can protect the programs from one another so that they don't fight over system resources such as I/O ports, the screen, and keyboard.

However, to achieve this, you need a multi-tasking operating system – MS-Dos is not capable of doing more than one thing at once. We recently tried out three contenders, all of which operate on top of Dos, making it into a multi-tasking operating system. While all three systems achieve essentially the same end, they go about it in radically different ways. DESQview and MultiWare are both primarily text-based, although they can run graphics applications without any problems. Windows, on the other hand, is a graphical user inteface which runs text-based Dos applications by emulating the text mode in a window.

The big advantage of all three systems over OS/2 is that they can all run multiple Dos applications – OS/2 can only run a single Dos program in its compatibility box, and all other applications are suspended while the Dos program is running. Until more OS/2 applications appear, users will find themselves using the compatibility box quite a lot, which effectively cripples OS/2 into behaving as a single-tasking Dos machine.

DESQview

DESQVIEW 386 IS really two products rolled into one – DESQview 2.2, and QEMM (Quarterdeck Expanded Memory Manager). Either can be used on its own (and can be purchased separately), but it is when they are used together on a 80386- or i486-based system that they really shine. In fact, for most applications, to have a '386 machine with a few megabytes of Ram and *not* use DESQview is almost certainly a waste of system resources.

DESQview does not *need* a '386 or '486 to run, it will work with varying degrees of success on 8088- and '286-based machines. However there are three important limitations with these machines. First of all, the 8088 does not have a protected mode (necessary to stop badly-behaved applications interfering with each other, and to address more than one megabyte of memory), and the protected mode of the '286 is incompatible with programs written for the real mode of the processor, so it is essentially only a fast 8086. OS/2 can multi-task on a '286, but only with OS/2-specific applications, which of course excludes any current Dos programs. The '386, on the other hand, has a protected mode which allows several 8086 real-mode programs to run concurrently, in different areas of memory.

Speed, or lack of it, is another reason not to use slower XT and AT systems. If you're running four applications at once, the processor has got to do over four times the work, and if you spend half your life waiting for the computer to catch up with you, any productivity advantage offered by the ability to run several applications at once will be rapidly eroded.

The final important consideration for a potential multi-tasking PC is memory. Running several applications at once obviously requires enough memory for all of them (ignoring disk swapping for the moment). As you add more memory to a computer, it naturally represents a greater percentage of the total value of the machine, and the difference in cost between a '286 and '386 machine starts to become less significant.

The final nail in the coffin of the '286 came in the form of the '386SX. With SX systems typically costing only a few hundred dollars more than an equivalently-configured '286, yet running all the software supported by the full-blown '386 (the DX), buyers of new systems would do well to spend the extra money, and have a system capable of running DESQview and other software which can take advantage of the '386's enhanced modes.

Installation of DESQview, like virtually all contemporary software, is handled by an install program, which not only copies the necessary files to the hard disk, but also configures it for operation. In addition, it can search your hard disk for known applications, and install them in its application menu.

However, manually installing applications is not difficult, which is fortunate, since DESQview won't install any applications it doesn't recognise. Installation consists of telling DESQview the location on the hard disk of the executable file or batch file, the startup directory (if any), and other parameters, such as the memory required, whether the program writes directly to the screen, whether to use DESQview's (rather ghastly) default colours, or the program's own colours, or if the program requires use of a COM port.

Only COM1 and COM2 are managed by DESQview, but it doesn't prevent you from using COM3 and COM4 if you wish, but if you have two interrupt-driven programs on the same interrupt line (the odd-numbered ports share one interrupt line, and the even-numbered ports share another), you can forget it, unless you're willing to start cutting tracks on your I/O card to put some of the ports on unused interrupts (if your software supports this). It's a pity DESQview can't intercept the COM port interrupts, and by checking the status registers in the serial chips and the allocation of ports to Windows, direct the interrupt to the appropriate application.

All this may seem a little daunting at first, but it is not really all that bad. COM ports are easy to figure out. If the program is a communications program, then it will need a COM port – the one that the modem is connected to. If you have an internal modem, it makes no difference, you still need to tell DESQview that it needs that port. Also, you should tell DESQview not to allow a communications program to be swapped out, since an interrupt on the COM port will send the program out into the never-never, if the code has been swapped to disk.

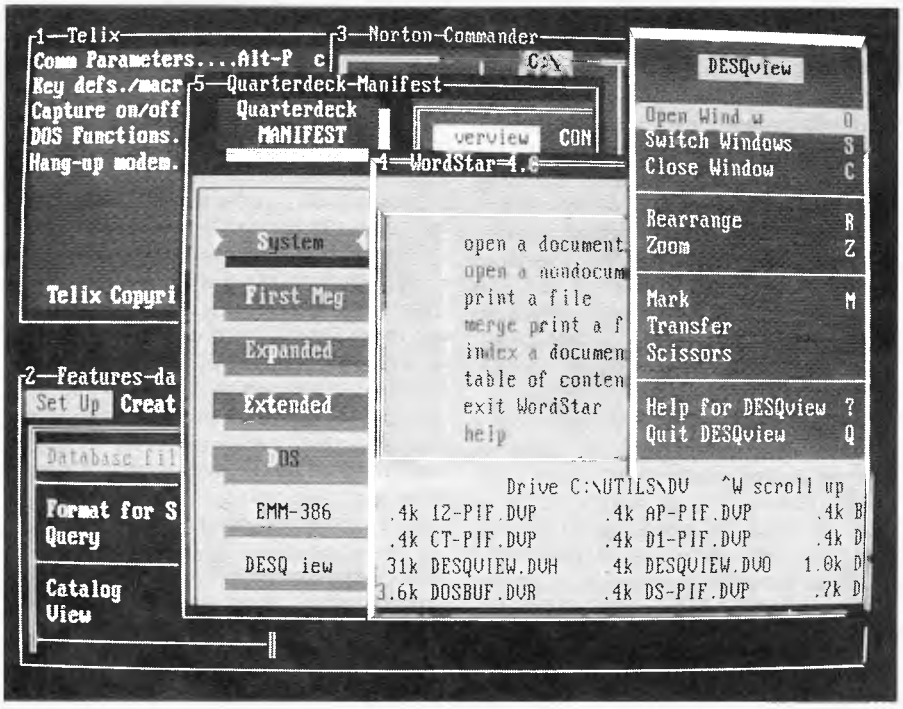
A '386-based machine is a prerequisite to using DESQview to anywhere near its full capacity.

Allocated memory

MEMORY REQUIREMENTS are not too difficult to determine, either. If the software specifies the amount of memory required, then just enter this value. Often, the figure given is for total system memory, which includes the memory used by Dos. If this is the case, you can safely subtract 80- to 100K from this memory requirement. If the software doesn't tell you how much memory it needs, start with DESQview's default, and work from there.

If you allocate too little memory to an application, it will probably report 'Not Enough Memory' and terminate. This can be difficult to spot, since the DESQview window will disappear when the application terminates, taking the memory message with it. So if the window disappears as soon as the application starts, increase its memory allocation.

Allocating too much memory, on the other hand, won't affect the program's operation, but it will reduce the number of applications you can have loaded before disk swapping starts, since applications



DESQview stays in text mode, unless it is running a graphics application, to maximise speed. Multiple windows can be displayed at once, or a single window can be zoomed to occupy the entire screen.

will be reserving memory for themselves that they don't use. Some applications will run more efficiently with a bigger memory allocation, by being able to load more overlays or data into memory at once, rather than swapping them from disk. If this is the case, then you'll have to trade-off system performance against the number of windows you can have open at once.

Don't install memory-resident applications such as SideKick before loading DESQview, as the resident program won't be able to 'see' through DESQview to look for its hot-key. Also, any software installed before DESQview reduces the available memory in all windows, so it is a good idea to keep resident software to a minimum. Install any TSRs inside a window, perhaps using a batch file. The only software which should be loaded before DESQview is drivers for non-standard hardware, networks, and so on.

DESQview can also control a program's access to EMS memory, by telling it that there is less EMS memory than there really is. This is advantageous for running those badly-behaved programs which grab all free EMS in sight as soon as they start, whether they need it or not. This prevents other applications using EMS, and will also stop DESQview opening any more windows, since it will not have any memory to put the new application in.

It is easy to determine whether a particular application does this. In one window, fire up Quarterdeck Manifest (supplied with DESQview 386), and then fire up the application in question in another window. Switch back to Manifest, and select the 'Expanded' display. If the available EMS is zero, then you will need to limit that application's access to EMS (unless you started with a small EMS

There are two ways that DESQview can load applications into a window – directly, and by first loading command.com. Loading a program directly saves memory, since part of command.com remains resident when it loads the application (about 7K with Dos 4). However, if you specify the full path name and extension of the application, DESQview can load a Com or Exe file directly into memory, bypassing the Dos command interpreter. Batch files cannot be loaded in this way, since Command.com is needed to interpret the instructions in the batch file. The only time you should call batch files from DESQview is if you want to load a TSR or three before the actual application.

Video modes

WHILE DESQVIEW normally runs in text mode, when any of the visible applications switch to graphics mode, DESQview itself switches to graphics mode, emulating text mode for the other applications, in the same way as Windows does when running Dos applications. This is of course slightly slower, since each text character written to the screen needs to be converted to the appropriate combination of graphics pixels before being displayed. When any graphics application is terminated, DESQview automatically switches back to text mode, to maximise speed.

Now to the second component of the system – the Quarterdeck Expanded Memory Manager. QEMM is a fully EMS 4.0-compatible expanded memory driver, making the extended memory accessible to '386 processors appear as expanded (EMS) memory, as required by the large majority of software applications, including DESQview. However, QEMM is not just a device driver. It is in fact a suite of programs and drivers designed to get the most out of your system's memory.

Anybody who has used Dos for even a short while will be familiar with the so-called 640K limit. This arises from the 1Mb limit of the 8088's address space, and the need to leave some space free for system Rom, video Ram, and so on. This accounts for the 384K between the top of system memory and the top of memory, at 1Mb. However, in reality, it is extremely rare for all of this space to be used, resulting in one or more unused blocks of memory space. However, since Dos can't use memory beyond the 640K threshold for programs, and the fact that there is no memory physically present in these unused locations, means that this unused address space ends up simply being wasted.

The design of the '386 processor solves this last problem – the incorporation of a memory management unit allows unused memory to be mapped into these empty locations. Since these memory locations are below the 1Mb real addressing limit, they are just as accessible as those locations below the 640K limit, it's just that Dos doesn't know the memory is there, nor how to allocate it.

Since Dos allows a great deal of flexibility in terms of loading device drivers and TSR (terminate and stay resident) software, all programs and drivers are relocatable, since the writer of a given driver or program cannot know for sure where in memory will be located, it must be able to cope with the possibility of being located anywhere. The 640K limit means nothing to applications themselves, only to Dos and its memory allocation system.

Ram mapped into these locations be-

tween the 640K and 1Mb boundaries is referred to as *high Ram*, and is made available by specifying the 'Ram' switch when QEMM is loaded. By default, the Ram switch makes all suitable unused locations available as high Ram, but this can cause problems with things such as network cards, which use high memory locations, but which may not have been initialised when QEMM is trying to determine which memory locations are available for use as high Ram.

Fortunately, QEMM includes a utility which can be used to determine which memory locations are unused. These parameters can be specified after the RAM switch, to allow the specified areas of high memory to be allocated as high Ram.

In addition, QEMM can make use of unused video Ram in EGA and VGA adapters, to store program code. This is because these adapters, when running in text mode, use only a fraction of the memory that they do in graphics mode, but that memory is always present, and if you're not going to use the graphics capabilities of the card, you can use the graphics Ram as more high Ram.

QEMM includes two utilities for putting TSRs and device drivers into these areas of 'high Ram', freeing up that all-important bottom 640K for applications. One is that it takes the form of a device driver, which is loaded through config.sys, which in turn loads the desired device driver into high Ram, taking over the task of allocating memory to the driver from Dos, which doesn't know anything about high Ram. The driver doesn't mind being located above 640K, since it is relocatable. This would typically be used for mouse drivers, Ansi console drivers, or drivers for non-standard disk drives.

The other utility is a com program, which does similar things for TSR programs such as SideKick, or network operating systems. With a bit of planning, most people will be able to fit most or all of their resident software into high Ram. On my '386, I managed to fit all device drivers, in addition to three out of four TSR programs.

TSR programs typically use more memory while they are initialising themselves than they do when they terminate. So the presence of enough memory for the resident portions of all TSRs does not necessarily mean that they will all be able to be located in high Ram. In my case, the largest block of high Ram was 96K in size, which was not quite large enough to hold WordFinder and SideKick, and the next largest block of high Ram was too small for either of them. Since WordFinder was the smaller of the two, it was relegated to conventional memory, leaving about 30K of spare high memory. This allowed me to increase the size of the SideKick notepad up to a more usable 32K size, a luxury which I could not afford when it was located in conventional memory.

Setting up applications

DESQVIEW IS designed to multi-task ordinary Dos applications on a '386 processor, so there are bound to be problems with software which is written in the belief that it is the only program running on the PC at a given time. System resources such as the console (screen and keyboard), disk drives, and I/O ports, need to be shared by several applications, as well as the system having to divide its time amongst the various applications.

Fortunately, the '386 has a protected mode, which allows the system (under the control of DESQview in this case) to protect applications from interference to memory and system resources which it is using.

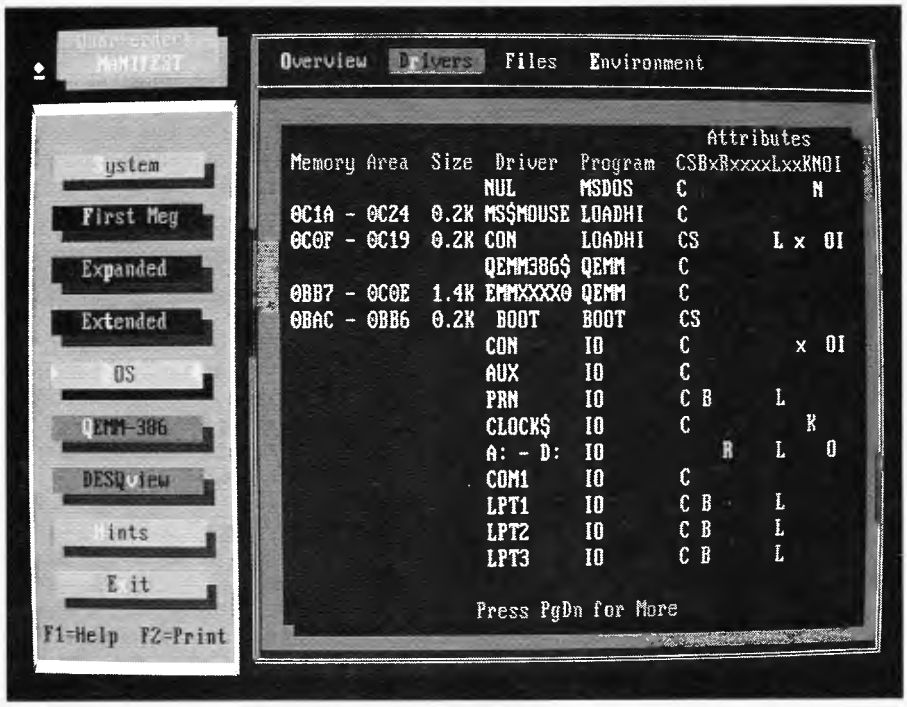
One slight quirk I noted was that sometimes a window could 'see' the keyboard when it should not have been able to. The only time I noticed this was when I hit the SideKick hot-key combination in a window which didn't have SideKick in it. Nothing would happen in that window, and operations would proceed as per usual, but when I switched to the window which *did* have SideKick running in the background, SideKick was sitting there in the popped-up state. Changing the keyboard protection didn't seem to help much either. Strange.

When DESQview runs out of memory, it starts to swap background applications to disk (unless disk swapping is disabled, as would be the case with a communications program. This is one of the less desirable features of DESQview – its swapping is slow – painstakingly so.

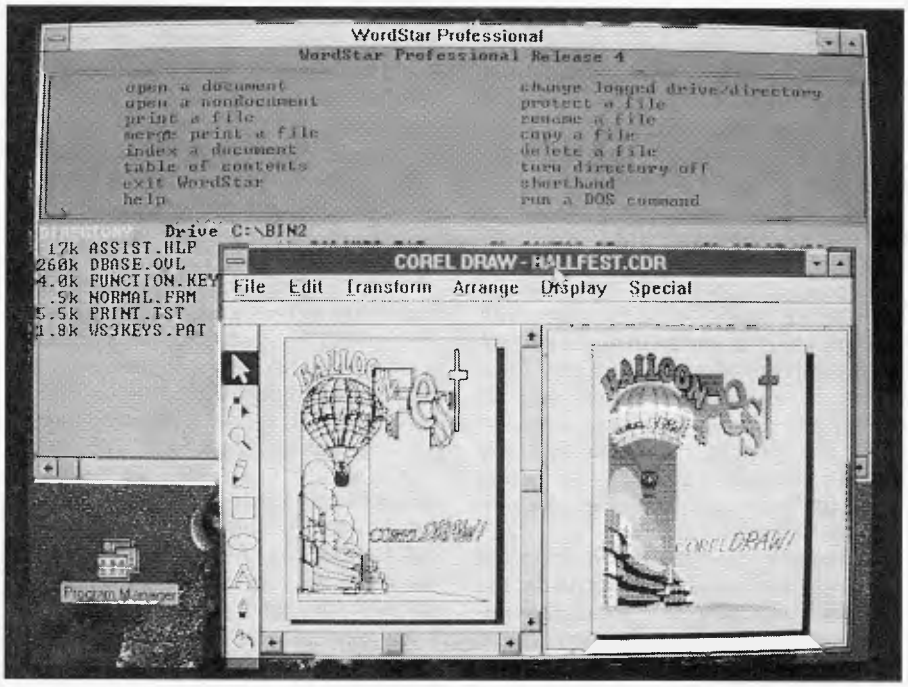
DESQview's operation can be automated to some extent through key macros, provided by a built-in macro recorder. Probably the most frequent application of the macro recorder is to record a start-up macro, so that when DESQview starts up, it opens up windows with all your most frequently-used applications already running.

System requirements

A '386-BASED machine is a pre-requisite to using DESQview to anywhere near its



Quarterdeck Manifest is a useful 'system snooping' utility which is shipped with DESQview 386. It reports on memory usage (conventional, extended, and expanded), Dos configuration, and the status of DESQview and QEMM, if they are running. Here it is showing part of the Dos device driver chain, which includes both built-in Dos drivers, and drivers installed via config.sys.



On a '386 machine, Windows can run ordinary Dos applications in a window, allowing Windows and non-Windows applications to run concurrently.

full capacity. A '386SX is no different from a full-blown '386 as far as DESQview is concerned, since it can execute all the protected-mode commands that its big brother can. You will also need more memory than you do to run a single application, if you are to avoid the painfully slow disk swapping procedure. Consider 2Mb a minimum starting point, with 4Mb a better choice for running several larger applications. On a 4Mb machine I regularly have four windows open (about 300K each) with plenty to spare. However, opening up memory-hungry applications (such as Lotus 1-2-3) quickly soaks this memory up, but if your requirements aren't too demanding, you can probably get by with less.

Clock speed is also important, since the processor is effectively doing several things at once, every MHz counts. If you've ever had trouble noticing the difference between a 25MHz and 33MHz machine, try them with DESQview with a few windows open. You'll soon appreciate the difference. If you can afford a '486, so much the better – they really fly. I recently had one of Compaq's Deskpro 486/25s for a couple of weeks, and it left my 33MHz '386 for dead. If ever you wondered why anybody needed all that speed, here's one answer.

Just as we were putting this feature together, we learned that Quarterdeck has released a new version of both QEMM and DESQview. The new versions allow Windows 3.0-specific applications to be run under DESQview in either real or standard modes, while the updated version of QEMM allows TSRs to be loaded into high memory while running Windows 3.0. We haven't had a chance to look at this version yet – watch for a more detailed analysis in the near future.

Windows 3.0

WHEN MICROSOFT WINDOWS was first released in 1985, it was hardly the recipient of critical acclaim. Its non-overlapping tiled windows, and the lack of suitable applications made it pretty much a dead end as far as the user was concerned.

Windows 2 was radically different in design, with overlapping, re-sizable windows. Also released at about the same time was Windows/386, which made better use of the facilities of the 80386 processor. More importantly, Microsoft released the PC version of its spreadsheet, Excel, to run under Windows, and Aldus' popular PageMaker also used the Windows interface, although a run-time (cut-down) version of Windows was shipped with the package for those who did not already have Windows.

Windows made it simpler for developers to write applications which spanned both the PC and Mac operating systems, and to maintain a reasonably consistent user interface across the platforms. However there were still limitations. The MS-Dos Executive window, from which applications were launched, was nothing more than a point-and-shoot Dos directory. To launch an application, the user still had to change to the correct directory, and click on the appropriate EXE file.

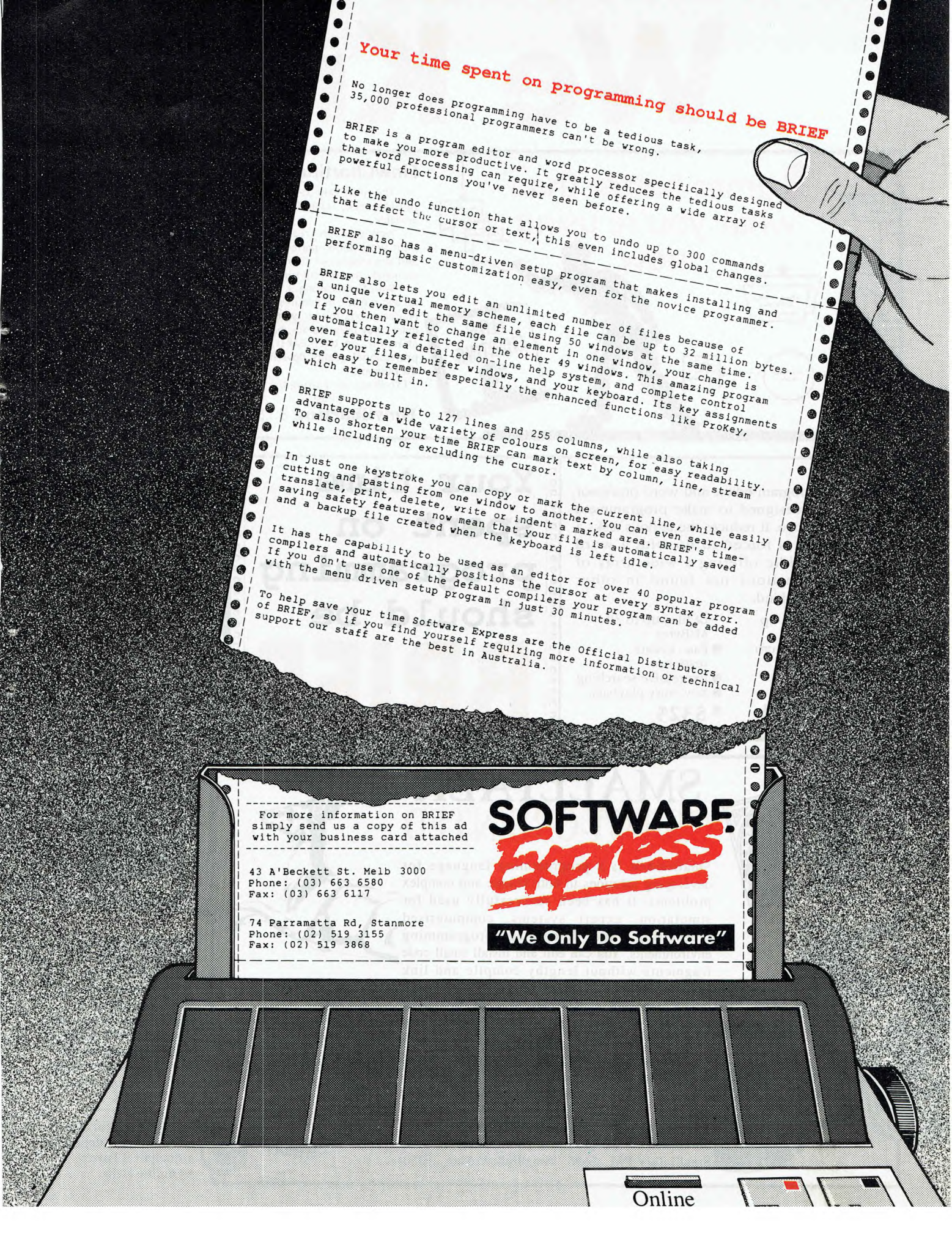
The big leap forward came with the recent release of Windows 3.0. Aside from integrating the '286 and '386 versions of the system into a single package, and being able to use extended memory directly, the front-end shell was changed from the rather unfriendly MS-Dos Executive to the Mac-like program manager. Here, programs and data files are represented by icons, divided up into groups. These groups need not bear any relation to the actual location of the files in the disk's directory structure, so that similar applications can be grouped together even if they reside in different directories, or even on different drives.

This is in stark contrast to the Mac, where folders are physical groupings of files on the disk (just like Dos directories), and each file is represented by an icon automatically, rather than manually, as is the case under Windows.

The file-icon relationship under Windows is not very direct – deleting an icon from a program group does not delete the associated file, and deleting a file still leaves the icon there in program manager. It's a pity that Microsoft didn't make this part of Windows a bit more like the Mac, but I guess it's more a limitation of the underlying Dos, and its lack of icon support.

Windows 3.0, for the first time in the history of '286 computers, is a Dos extender which can use the *extended* memory found on such machines, without needing to have an emulator present to make it appear as *expanded* memory. (For a description of the differences between the two types of extra memory, see Stewart Fist's article in the May 1990 issue, and Brandt Dainow's two pieces, in the September and October 1990 issues.)

The Windows philosophy is markedly different from that of either DESQview and MultiWare. While these two systems are designed to multi-task standard Dos applications, Windows is designed to be used with applications designed specifically for that environment. Windows applications cannot be run from the Dos command line, since they rely on services provided by the Windows operating system.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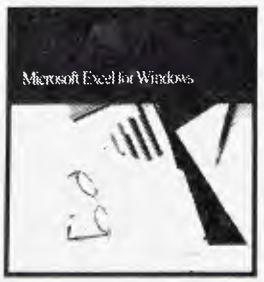

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HAPPY NEW YEAR

OS/2

NO, WE ARE not calling OS/2 an alternative to OS/2. However, since we are comparing three different multi-tasking operating systems to OS/2, we thought it appropriate to have a brief look at the operating system which IBM was once convinced everybody would be using by now.

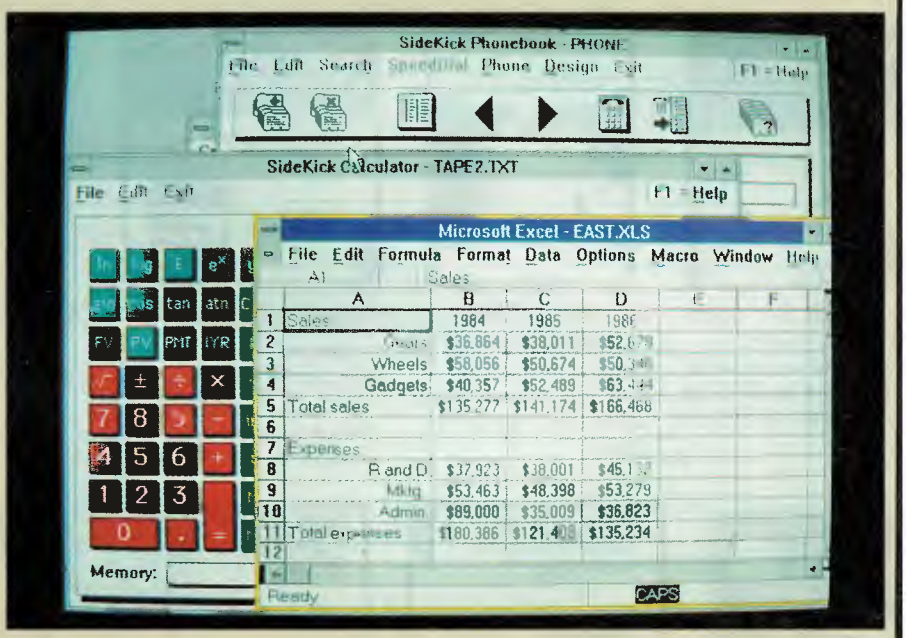
OS/2 differs from the other three systems discussed in this article in several ways. First of all, it is an operating system in its own right, while all of the other three operate over the top of Dos, with all its inherent limitations, OS/2 is a complete operating system in its own right. If you want to run Dos applications, you have to fire up the Dos compatibility box, which suspends all OS/2 applications. When you switch back to OS/2, the Dos application is suspended, not unlike Windows running in standard or real mode.

OS/2 supports two different file systems – the FAT system used with Dos, and the new high-performance file system – HPFS. The FAT partitions can be either the pre-Dos 4.0 32Mb type, or the Dos 4.0 large partitions. The HPFS file system, is accessed much faster than FAT partitions, and can have long file names (I suspect the limit is 255 characters, but it is certainly longer than the 11 characters allowed by Dos), and these filenames can contain upper- and lower-case characters, and other illegal (to Dos) characters, such as spaces. When accessing file and directory names from the command line, they need to be included in quotation marks.

The Dos compatibility box contains an emulator which allows files and directories stored on HPFS volumes to be accessed, provided the names conform to Dos filename conventions. If the filenames are longer than the Dos limit, or contain illegal characters they are not accessible at all. Not even through a truncated version of the filename.

OS/2 also comes with a dual-boot facility, consisting of two batch files which allow the computer to be set up to boot from OS/2 or Dos when it is next re-started. If you boot under Dos with an HPFS partition, then this partition is inaccessible from Dos. Suffice to say, if you make the bootable hard disk partition HPFS, you cannot have dual-boot.

OS/2 certainly has a much snappier feel to it than Dos and Windows, with menus popping up and down instantly, or at least much quicker than Windows.



The OS/2 user interface is very similar in appearance and operation to Windows 3.0. Note the partially hidden SideKick screens – it is shipped as standard with OS/2.

This is not surprising, since Windows is still operating through Dos.

The 'look and feel' of OS/2 is very similar to that of Windows 3.0, which is not surprising considering their common ancestry. The Desktop Manager is the OS/2 equivalent of Windows' Program Manager, although there are some small differences. For example, groups each occupy their own independent window on the desktop, rather than appearing within the main Desktop Manager window. All other Windows accessories have counterparts under OS/2, with few major differences between the two.

Windows currently has an advantage over OS/2 when running on a '386 – it can run multiple standard Dos applications in independent windows, simultaneously with Windows applications. However OS/2, running as it does in 286 mode, is similar to Windows in Standard or Real modes – only one Dos application, and it takes up the full screen, suspending all other applications. What we're all waiting for is a version of OS/2 that can take advantage of the protected mode of the '386.

One of the reasons originally put forward for OS/2's slow acceptance was its memory requirement, at a time when the price of Ram was ridiculously high. Shortly before going to press, IBM announced OS/2 version 1.3, which can run on machines with as little as 2- or 3Mb of Ram, where previously figures of double that were needed. Ironically, memory is now a lot cheaper than it was when OS/2 was first released. I think the real reason for the market resistance to OS/2 is the lack of applications, and the fact that its support for Dos applications is worse than that of Windows running on a '386. We're still waiting for version 2.0 for an improvement there.

IBM aren't the only company shipping OS/2 with their machines. Our copy came from Syncomp Australia, (02) 748 4777, as did the computer on which it was installed, for which we are extremely grateful. This computer came in very handy, and soon had a total of five operating systems on it – Dos, OS/2, DESQview, Windows, and MultiWare – all happily co-existing. The Syncomp served as a test bed for each of these systems (one at a time of course), leaving my main computer free for word processing.

This allows all system resources to be managed by a central piece of code, rather than each individual application.

However, Windows 3.0 really shines when it is used on a '386 or '486 based machine, with at least 2Mb of Ram. With such a configuration, Windows fires up in '386 enhanced mode, which uses some of the more powerful features of this processor, giving you the ability to multi-task Windows *and* non-Windows applications simultaneously. Since we are specifically looking at multi-tasking Dos extenders, we will be concentrating on this mode of Windows' operation.

SmartDrive

TO GET THE most out of Windows '386 Enhanced mode, you really need more than 2Mb of Ram – 4Mb is nice, and 6 or 8Mb is even better. With this, you can set up part of memory (still leaving at least 2Mb for Windows itself) as a disk cache, using the supplied SmartDrive utility. This really speeds up Windows' operation, as it is usually quite disk-intensive, and a 1- or 2Mb cache really makes Windows a pleasure to use.

SmartDrive is in fact designed specifically to work *with* Windows, with Windows dynamically re-sizing the cache according to demand. The SmartDrive command line has two parameters, which specify the maximum and minimum cache sizes. Windows then re-sizes the cache as it needs more or less memory.

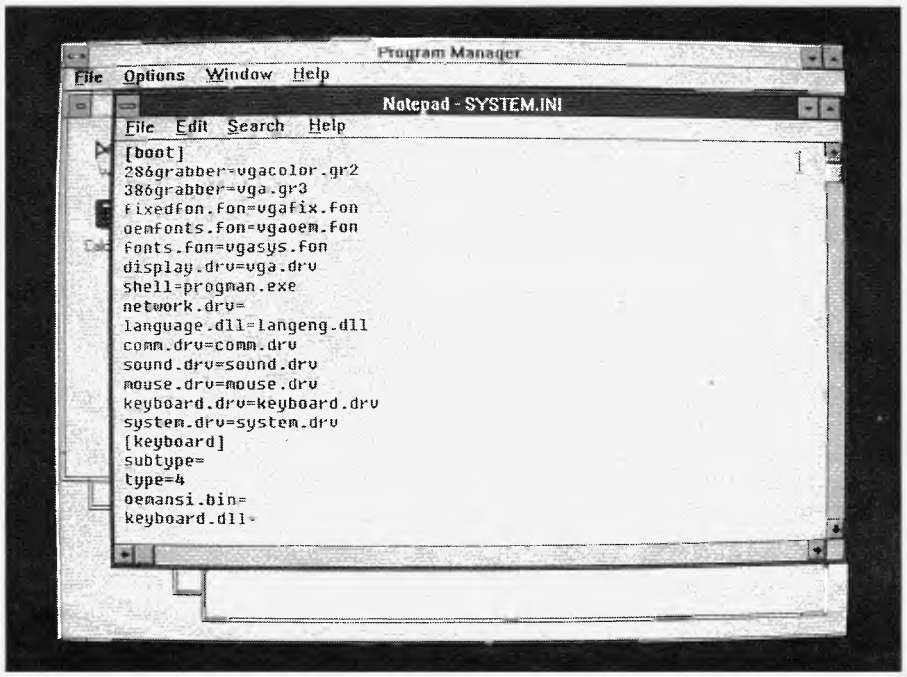
If you use SmartDrive, it is a good idea to de-fragment and condense your hard disk frequently. The reason being that SmartDrive caches entire disk tracks, and if the disk is not fragmented, there is a good chance that if data is required from a previously-accessed file, it will already be in the cache from the last access. If the disk has lots of empty space interspersed with the files, the cache will waste memory caching this unused space.

While Windows uses extended memory for its own use, it can emulate EMS (expanded) memory, for Dos applications which require it. Windows can also make extended memory available, for applications which use memory conforming to the XMS standard. Minimum and maximum limits can be defined for both of these, and all three types of memory allocated to a program can be locked, to prevent disk swapping. Select the locked option for the same reason as you would under DESQview, such as for running a communications program, or improving that application's performance. Windows can also allocate the high memory area (the first 64K of extended memory) to programs which can use it. The HMA is allocated on a first-come first-served basis, as only one program can use the HMA at any given time.

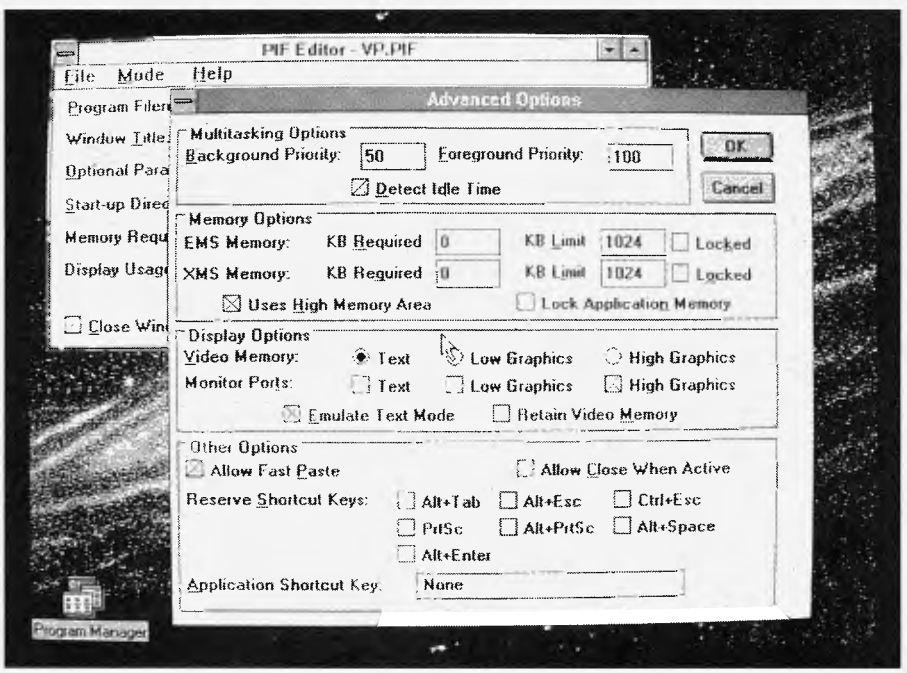
Another invaluable feature of Windows' 386 mode, is its ability to use virtual memory, by setting aside part of the hard disk as a swap file, and swapping unused parts of programs to disk until they are required again. This of course involves a fair amount of disk access, but if your applications need more memory than is physically present in the machine, then there is no substitute for virtual memory.

Windows manages virtual memory in one of two ways, using either a temporary or permanent swap file. A temporary swap file is managed in the same way as any normal Dos file, and is created when Windows starts up, and is deleted from the disk when Windows terminates. In this way, it doesn't occupy any disk space when Windows is not running.

However, the speed suffers with a tem-



Windows' system.ini file tells Windows about various system-level parameters, such as which hardware drivers to use, just as win.ini tells Windows about applications' requirements.



The 'Advanced Options' screen in the PIF editor gives a wide range of control over Dos applications running in 386 mode.

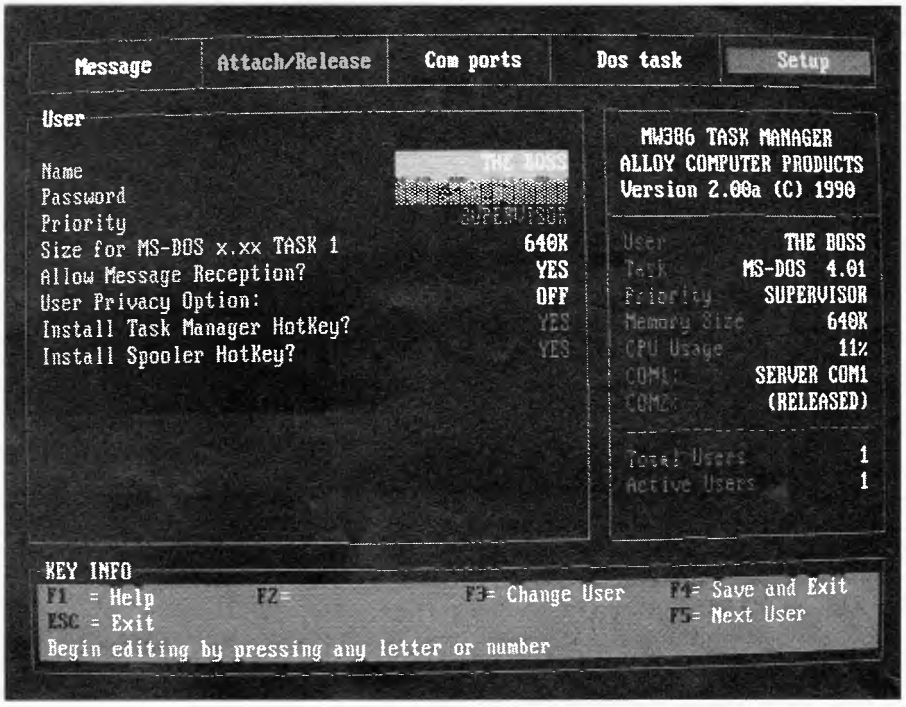
porary swap file for two reasons. First of all, all accesses to the file are handled by the Dos file handling functions, which incur a significant time overhead. Also, it is quite likely that the swap file will be fragmented, further slowing down access.

A *permanent* swap file, on the other hand, gets around both of these problems. For starters, Windows will only create a permanent swap file on a contiguous part of the hard disk. For this reason, it is a good idea to run a disk de-fragmenter, such as Norton's speed disk, to make sure that you have a large enough unbroken block of free space on the disk.

Also, once this file has been created by the Windows *swapfile* utility, it is then accessed *directly* by Windows, without going through Dos file handling procedures. For this reason, hard disks with non-standard cluster allocations or network drives cannot be used for storing the swapfile, since Windows has to be able to access the disk sectors in a predictable manner. So on a network, any workstations which need a permanent swapfile must have a local hard disk, since networks do not allow for direct access to disk drives on a cluster-by-cluster basis.

One of the most powerful features of Windows is its ability to run standard Dos applications in a window, when running in 386 mode. Like DESQview, Windows intercepts writes to the screen, and re-directs these to its own screen handler, which ensures that the application can't make a mess all over other windows. This is not possible in real or standard modes, owing to the '286's lack of an 8086-compatible protected mode, and the complete absence of a protected mode of any kind on the 8088/8086 processors. Under these modes, non-Windows applications operate in full-screen mode only, and all Windows applications are suspended while the Dos program is running. Similarly, when the Dos program is minimised (the only way to continue running any Windows applications), it likewise is suspended.

Windows' system management features go further than DESQview in many ways. For example, all Windows applications print via the Print manager, which queues print jobs waiting for the printer. Printer drivers are also handled by Windows, rather than the actual application programs, although some specialised applications come with their own drivers – presentation graphics packages typically include a driver for some form of slide bureau output. Of course non-Windows applications running under Windows cannot use the spooler, or any of the other advanced features of Windows.



386/MultiWare's setup screen provides access to many multi-user type features not normally found on a single-user package.

Since Windows relies on specially-written applications to take advantage of its features, it has taken a while to take off. However, the market demands for a standard graphical user interface for PCs had helped fuel the proliferation of a large range of Windows applications. A list of known Windows 3.0 applications is provided with every copy of Windows shipped.

Another of the most powerful, although still largely unimplemented, features of Windows is *dynamic data exchange*, or DDE. DDE allows cells in two spreadsheets to be linked together, so that changing values in one spreadsheet automatically changes the appropriate cells in the other. Or a spreadsheet can be DDE linked to a database, so that projections can be made on the very latest data available, automatically. This is impossible to implement without the relevant applications being aware of its existence, which gives Windows a decided advantage over the other two systems.

386/MultiWare

I HAVE TO admit some reluctance to testing 386/MultiWare – not because I had any doubts as to its capability to perform as a multi-tasking operating system, but simply because I had been using both Windows 3 and DESQview extensively for a period of several months, and I felt that I wouldn't be able to do justice to MultiWare in the few weeks I had before Jake started prodding me for some copy to put in the magazine. Alloy's Duncan Angus would have none of this, even to the point of personally delivering a copy to our office. And I'm glad he did.

In common with the other two systems we have already looked at, MultiWare runs on '386-based computers, using the virtual 8086 mode of that chip to isolate standard Dos-based applications from one another. MultiWare is *not* a windowing system. The foreground application has exclusive use of the screen, while screen writes from background tasks are buffered by the operating system, and only displayed when that task is switched to the foreground. Of course, keyboard input is only passed to the foreground application (an area where DESQview occasionally slipped up, as I noted before).

This is not the disadvantage that it may first seem. Dos applications are usually written assuming that they have a full 80 *x* 25 screen, and tend to make use of the full screen area. Running such a program in a small window under DESQview usually

means that information is obscured, since the application doesn't know that you can't see what it thinks is the full screen. I almost always run foreground applications full-screen under DESQview, and maximised under Windows, since I am rarely concerned with the screen output of background programs. If I want to find out what a background application is doing, I switch to it, and then switch back to what I was doing. That's far more convenient than trying to write an article on an area of the screen the size of a postage stamp.

MultiWare is really a multi-user system, and even the single-user version has many features often only found on multi-user systems. A built-in print spooler with queue handling features allows print jobs to be prioritised for preferential printing. On a multi-user system, this sort of activity would normally be restricted to the system administrator, but on a single user system, *you* are the administrator.

One thing I noticed with MultiWare was that its system overhead seems to be a lot lower than either DESQview or Windows. It was the only system that I could run LapLink III under, and transfer files without getting timeout errors. Apparently, the overhead of the other systems causes LapLink to miss some characters in a block, and so it re-starts that block again. With 64K blocks, it rapidly gets nowhere under either of the other two systems.

Another useful feature of MultiWare is its handling of serial ports. While DESQview and Windows can reserve a serial port for an application, MultiWare can logically connect an application to a different port, so that the physical COM2 port on the machine can be made to appear as COM1 to an application.

MultiWare doesn't provide the level of user interface sophistication of either Windows or DESQview. It simply allows several Dos tasks to be run concurrently, and it does this very well, using the existing Dos command line interface. Switching between applications is accomplished with a simple two-key combination, and since only one application is visible at any time, there is no problem with important information disappearing off the edge of a window.

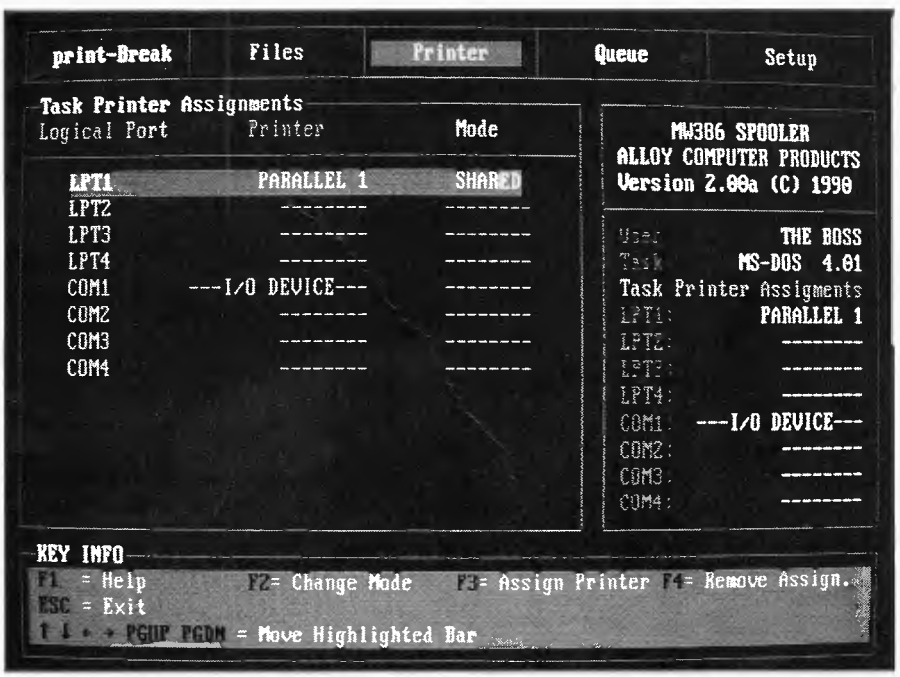
Which one?

MAKING A DECISION about which way one should go when choosing software is never easy, especially when the approaches taken are as diverse as these three. All of the systems tested performed largely as expected, with few surprises.

DESQview is the most established multi-tasker, having been steadily refined over the years to take advantage of new hardware and software developments. It's hard to beat for running several existing applications at once, but it needs a '386 for best results.

Windows 3.0 has certainly received much attention in the press of late, and that attention is well-deserved. It allows for a constant user-interface across three different operating modes, and for graphical applications it is hard to beat. The ability to run standard Dos applications in a window on a '386 is certainly very useful for those applications which haven't yet migrated to Windows, but if you don't intend to run Windows-specific applications, then DESQview is probably a better bet.

386/MultiWare differs from the other two operating systems in that it is really a multi-user system, although we only evaluated a single user version of the program. For applications where the system may need to be upgraded later on, MultiWare will provide this upgrade path without major software revision. The provision of an inbuilt print spooler also gives it an advantage over DESQview, although you can only have one window open at once. Also, the price includes a Dos license – the other two need Dos to be there already, making MultiWare difficult to go past for most multi-tasking purposes. □



System serial and parallel ports can be allocated to applications in a very flexible manner, so that a given application, for example, can send output to LPT1, and have this re-directed to a real printer connected to the LPT2 port.

Product Details

Product: DESQview 386
From: Quarterdeck
Distributor: Sourceware
Phone: (02) 427 7999
Price: $325

DESQview is hard to beat for multitasking existing Dos applications.

Product: Windows 3.0
From: Microsoft
Distributor: Microsoft
Phone: (02) 452 0288
Price: $245

One invaluable feature of Windows' 386 mode, is its ability to use virtual memory, by setting aside part of the hard disk as a swap file, and swapping unused parts of programs to disk until they are required again.

Product: 386/MultiWare
From: Alloy
Distributor: Alloy
Phone: (03) 561 4988
Price: $200 (including Dos license)

MultiWare simply allows several Dos tasks to run concurrently and it does this very well, using the existing Dos command line interface.

WORDPERFECT 5.1

The biggest selling wordprocessor for the PC is WordPerfect – version 5.1 adds new and valuable power, going beyond the capabilities of a low end desktop publishing package. John Hepworth found it's not 'perfect' – but what is?

WORDPERFECT 5.0 arrived nearly two years ago. It had new and powerful features, and its capabilities almost reached low end desktop publishing. Now, Version 5.1 has added new and valuable power, with optional drop-down menus, excellent ability to create equations for scientific and engineering documents, plus the ability to simply create and format tables, complete with boxing and vertical and horizontal rules.

Graphics can be inserted, and re-sized. Text in multiple columns is easy and can be started and ended anywhere in the document, and seen on the screen. Side by side paragraphs are just as easy. A graphics based 'preview' mode allows the finished page to be seen on the screen exactly as it would appear on paper, with the various type sizes and graphics visible. Preview offers normal size, twice normal size, or reduced size showing all of one page or two facing pages.

Margins can be specified in inches, centimetres and points, or characters, facilitating mixing of fonts on a line. A nice feature is that page breaks are always accurately and clearly shown on the screen. Macros continue to be an important feature, and have been enhanced.

A 'base font' can be defined for a document, and variations like bold or italic are easy. A font larger or smaller than the base font is picked by asking for 'very small', 'large' and others. Document styles can be saved and re-used. A 'timed save' can automatically save work in progress at user defined intervals, and backup files are optional. Two documents can be edited at a time. Red-lining and Strike-out assist when editing, showing deleted text and alterations on the screen. Help is always readily available, and clearly shows the keys and initial menus required to access the desired function.

All the standard features found in any wordprocessor, like right alignment, ragged right, justification and centering are standard, as are search and replace. Block functions like copy, move and delete are, naturally, included. Many other tasks may be done on blocks of text, including spell checking, sorting and styles. Document comments, footnotes, headers, footers, indices and tables of contents are included.

Other features include outlining, hyphenation, kerning and the ability to generate special characters such as characters with European accents.

WordPerfect includes a conversion program, to convert WordPerfect files to or from the formats used by other packages. The supported 'foreign' formats are DCA and RFT, as used by DisplayWrite and IBM mainframes, Navy DIF, Multimate and WordStar. Data files for mail-merge can also be converted to or from a variety of formats. WordPerfect 5.1 can also save and load files in WordPerfect 4.2 format.

WordPerfect 5.1 requires an IBM PC or compatible, including PS/2 machines, with a minimum of 384K of memory. A twin floppy machine can be used, provided the drives are 720K or bigger. The preview feature requires a graphics card, and there are printer drivers for a vast range of printers.

Installation and tutorial

WORDPERFECT 5.1 comes on no less than eleven 5¼ inch disks, and six 3½ inch disks are also in the package. An automatic installation program takes care of creating the appropriate directories on your hard disk, and copying the relevant files across.

An on-disk tutorial runs the new user through the basics of WordPerfect, wordprocessing and office documents. It appears to work as a background program that runs WordPerfect through a series of exercises, loading a number of tutorial documents from disk as it goes. The exercises are generally good, except for one case where the Australian dictionary did not know a word and the tutorial got out of step. Overall, it would quickly bring a novice up to an acceptable speed. Even better than the tutorial on the disk is an excellent written tutorial. It is just a little less than A4 in size, and at nearly 500 pages and 36 lessons is a comprehensive introduction to WordPerfect and its basic and advanced features.

Typing WP at the Dos prompt runs WordPerfect. A very simple opening screen appears for a few seconds, and then the screen clears, with the user being in the first document. The top 24 lines of the screen are clear, while the bottom line displays status information. At the left of the status line is the name of the file being edited, while at the right is the current cursor location. A typical status information could be –

```
Doc 1 Pg 3 Ln 1.33' Pos 3.8'
```

Two files can be edited at a time when using WordPerfect, and these are called Doc 1 and Doc 2, with the active file being indicated on the status line. Pg x shows the current page, and Ln y.yy" Pos x.x" shows the current line and position in the line. The Pos becomes POS when CapsLock is invoked, underlined when underline is selected, bold when bold is selected.

WordPerfect relies heavily on the use of the function keys in combination with Ctrl, Shift and Alt. Around 40 function keys are effectively available, and they either carry out a function directly, or bring up a menu within which a number of options await a choice.

WordPerfect uses some very idiosyncratic key combinations. While many PC applications have used the same keys for common tasks, it often seems that WordPerfect takes its own very different path. As an example, in many applications F1 is Help, while WordPerfect uses F3 for Help, and F1 cancels an operation. Most applications use PgUp and PgDn to move up or down by one screen, however, WordPerfect uses them to go up or down by one document page. The gray plus and minus

keys at the right of the numeric keypad in most applications insert plus or minus characters into the text, but WordPerfect uses them to go up or down by one screen. WordPerfect uses Ctrl-End to delete to end-of-line, while many other packages use this to jump to the bottom of the screen or document. Ctrl-PgDn deletes to bottom of the page, while Ctrl-BackSpace deletes the previous word, and Esc repeats the next key that is struck.

There are a host of other examples, but these are enough to give you the basic idea. It's not difficult to learn the commands, but it can be disconcerting to those of us who go from wordprocessor to database to spreadsheet and back again. I did get used to all the combinations reasonably quickly, but flouting so many industry conventions is scarcely wise when users often have to go back and forth from one package to another all day. Fortunately, it is possible to re-map the keyboard, but this can cause problems to other users of WordPerfect who may have to share the machine.

Codes by design

WORDPERFECT'S DESIGN tries to keep the screen as clear and uncluttered as possible at all times. As a result, the editing screen makes almost no attempt at WYSIWYG (what you see is what you get). The characters appear all the same size and use different colors for different character attributes, but there is no change in size, and italics are not directly visible. Right justification does not appear on the edit screen, but can be seen on the preview screen.

It is rather odd that as text is inserted into a line, the rest of the paragraph is not reformatted, but the text to the right of the cursor is pushed off the screen until the cursor reaches the right margin. At this time, the paragraph from the cursor down is reformatted. Moving the cursor with the cursor keys will also reformat the rest of the paragraph on the screen. The screen can be completely rewritten by pressing Ctrl-F3 to access the screen menu, and choosing option 0 which is Rewrite.

Text is formatted by inserting invisible control characters into the text. Sometimes this is done by the user, for example, by pressing the Enter key to insert a hard carriage-return/line into the text. Alternatively, WordPerfect can insert codes, as it does when reformatting a paragraph. Here it inserts soft carriage returns at the end of each line, and removes those that are no longer appropriate.

```
WordPerfect - Nearly Perfect

What is the world's best selling word processing program for a
PC? WordPerfect! It has always been a powerful and convenient
word processor, able to do almost any task that a writer or
office user could desire. Version 5.0 arrived nearly two years
ago. It had new and powerful features, and its capabilities
almost reached low end desktop publishing. Now version 5.1 has
added new and valuable power, with optional drop-down menus,
excellent ability to create equations for scientific and
engineering documents, plus the ability to simply create and
D:\WP51\WORDPERF.WPF                          Doc 1 Pg 1 Ln 1" Pos 1"
{  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  ▲  }  ▲  ▲
[Paper Sz/Typ:8.5" x 11.67",Standard]WordPerfect [-] Nearly Perfect  [HRt]
[HRt]
What is the world's best selling word processing program for a[SRt]
PC? WordPerfect! It has always been a powerful and convenient[SRt]
word processor, able to do almost any task that a writer or[SRt]
office user could desire. Version 5.0 arrived nearly two years[SRt]
ago. It had new and powerful features, and its capabilities[SRt]
almost reached low end desktop publishing. Now version 5.1 has[SRt]
added new and valuable power, with optional drop[-]down menus,[SRt]
excellent ability to create equations for scientific and[SRt]

Press Reveal Codes to restore screen
```

WordPerfect uses normally invisible characters or strings as formatting codes – Alt-F3 splits the screen horizontally, with normal text in the top window and the same text in the bottom window, with the control characters displayed.

```
Features [A]                          WordPerfect Key   Keystrokes

Absolute Tab Settings                 Format            Shft-F8,1,8,t,1
Acceleration Factor (Mouse)           Setup             Shft-F1,1,5
Add Password                          Text In/Out       Ctrl-F5,2
Additional Printers                   Print             Shft-F7,s,2
Advance (To Position, Line, etc.)     Format            Shft-F8,4,1
Advanced Macro Commands (Macro Editor) Macro Commands   Ctrl-PgUp
Advanced Merge Codes                  Merge Codes       Shft-F9,6
Align/Decimal Character               Format            Shft-F8,4,3
Align Text on Tabs                    Tab Align         Ctrl-F6
Alphabetize Text                      Merge/Sort        Ctrl-F9,2
Alt/Ctrl Key Mapping                  Setup             Shft-F1,5
Alt-=                                 Menu Bar          Alt-=
Appearance of Printed Text            Font              Ctrl-F8
Append Text to a File (Block On)      Move              Ctrl-F4,1-3,4
Append to Clipboard (Block On)        Shell             Ctrl-F1,3
ASCII Text File                       Text In/Out       Ctrl-F5,1
Assign Keys                           Setup             Shft-F1,5
Assign Variable                       Macro Commands    Ctrl-PgUp
Attributes, Printed                   Font              Ctrl-F8
Attributes, Screen                    Setup             Shft-F1,2,1
More... Press a to continue.

Selection: 0                                  (Press ENTER to exit Help)
```

The on-screen help in Version 5 is thorough – F3 plus a letter brings up the index of topics that begin with that letter.

All these control characters and strings can be deleted, copied and moved just as can normal printable characters. But how does the user know where an invisible character or string is located? It's easy – you just press Alt-F3 and the screen splits horizontally, with normal text in the top window. The same text is in the bottom

window, but this time the control characters are visible and bold. In this mode, on an XT, WordPerfect 5.1 slows right down, but as it is rarely necessary to see the invisible characters, this is not much of a burden. In faster machines the loss of speed would be unnoticed.

Overall, the screen handling is midway in features between WordStar and Microsoft Word, with the first requiring the user to manually request reformatting, and the latter reformatting the paragraph as each and every character is inserted. The WordPerfect method does give marginal speed improvement over Microsoft Word and is much more convenient than WordStar, but I would prefer to have the screen reformat automatically and constantly when I am trying to get the appearance of a document just right. Preview is invaluable, but is not a satisfactory substitute for automatic re-flow and seeing justification on the edit screen.

One of the strengths of WordPerfect is its macro language.

Macros

ONE OF THE strengths of WordPerfect is its macro language. A user can save a complex sequence of operations, and automatically recall and replay it. A macro can be created by pressing Ctrl-F10. The user then names the macro, either with a name from one to eight characters or with Alt plus another key pressed at the same time. WordPerfect then records keystrokes until Ctrl-F10 is pressed again. Macros named with the Alt key can be replayed by pressing Alt and the appropriate key again. Macros with other names are replayed by pressing Alt-F10 and typing in the macro name.

If, when attempting to define a macro, WordPerfect finds that the name is already in use, it prompts the user to find if the existing macro is to be replaced or edited. If the macro is to be replaced, the users keystrokes are recorded as before. If an existing macro is to be edited, WordPerfect jumps to a macro editing mode from which quite complex macros can be written or developed.

Good help is readily available while in the editing screen. First, press F3 and then press a letter key. A list of topics appear whose names start with the letter which was pressed. Next to each topic is shown the function key required to access the actual function from edit mode. To get expanded help for a specific topic, press the function key or key combination for the desired topic and a full help screen for the topic appears.

WordPerfect 5.1 comes with two manuals. The main manual is a slip cased ring binder with over 1000 pages, while the tutorial is, as already mentioned, a paperback of nearly 500 pages. The main manual is generally complete and well written, and it has valuable, well organised and relevant material on most topics. There is just one minor weakness – a utility program is provided to create or edit printer definition files (PDF). The manual covers the steps needed to make relatively minor changes to a PDF, but there is not enough information to create a new PDF for an unknown printer. As a solution, and fairly adequate since few users can create their own PDF or would ever need to attempt this task, an additional manual is available from WordPerfect called *WordPerfect Printer Definition Program, A Technical Reference.*

Conclusion

NO SOFTWARE will ever be perfect. Such an ambition is impossible, for what one user wants another will hate. Regardless of this, in this life we are judged as much by our professed standards as by our performance, and any package with 'perfect' in the name must be prepared for close scrutiny. On this score, WordPerfect 5.1 is nearly perfect – it has almost all the features and power that the most demanding user could require, but has a rather old-fashioned interface that is somewhat clunky in use. But still, it is equal to the best wordprocessors around, and far better than most. □

Product Details

Product: WordPerfect 5.1
Distributor: Sourceware
6 George Pl,
Artarmon NSW 2064
(02) 427 7999
Price: $715 rrp

WordPerfect 5.1 is nearly perfect – it has almost all the features and power that the most demanding user could require.

ROY HILL

Temperature conversion solution

LAST MONTH, I left you with the final challenge for the temperature conversion program. The numbers for the conversion had to be provided by users on the stack, as shown below–

10 20 C>F

The program to this is shown below, in its entirety. Once again, the solution is fairly simple.

```
comment:

    A file to create a word called C>F that
    converts Celsius temperatures (provided
    as a number on the stack) to their
    corresponding Fahrenheit values.

    comment;


: HEADING
      CR
      16 SPACES ." CELSIUS"
      15 SPACES ." FAHRENHEIT"
      CR CR ;

: CONVERT-T
       DUP 9 5 */ 32 + ;
```

```
: DISPLAY
      SWAP 17 SPACES 3 .r 21
      SPACES 3 .r CR ;

: C>F
     HEADING
     1+ swap
     do
       I
       CONVERT-T
       DISPLAY
     loop ;
```

Note the line that contains 'I+ swap'. The I+ is to make Forth go through the loop 'one more time', to produce the correct output for the given input. The 'SWAP' command is there to ensure that the values entered are in the correct order for the 'DO...LOOP' construct.

Next month I will start our final project (after this, you won't be beginners any more), which will be to produce an ASCII/-Hex dump of any given area of memory. We shall start with the 'bottom-up' style of programming, in that we will start with the 'core word/s' that actually do the hard work and then expand it to make a full-screen version.

I have had many letters from beginners, commenting on this section of the column. Thanks for your support. I guess that the letter from Mr D.J. Boyne (Oamaru, New Zealand) sums up most of the comments '....it would be useful if the tutorials could use examples which are reasonably helpful, for example little utility programs which go beyond calculator level processes. This is probably an unreasonable request for simpleness plus usefulness and I know you can't please all levels of interest either – but there it is.'

'It would be useful if the tutorials could use examples which are reasonably helpful.'

Well, I hope that the routines I'm using are useful – I'm always glad to see user contributions though, especially ones that fit Mr Boyne's request. □

ARCHIVIST DATABASE FOR SOURCE MATERIAL

For researchers working with printed material, the Rev. Dr. David Parker has found a useful database manager which includes a word processor and many powerful customising features.

FOR THOSE WHO find themselves indexing and retrieving information about books, periodicals, articles, archival documents, photographs, notes and abstracts, Archivist is a boon. It should be useful to librarians, students, researchers and of course archivists. It comes on two 5.25-inch disks (one for the program and the other for a sample database and documentation) or one 3.5-inch disk, and will run on any common XT or better; a hard disk is recommended and the program occupies about 323K of RAM, and works with Dos 2.00 or later.

Archivist uses Lotus-style drop-down menus as well as function keys for convenience. It incorporates a number of features which make it particularly suitable for its intended application.

For example, fields are not restricted to a length fixed at the time of creation of the database, but will extend as far as necessary to accommodate the amount of data to be entered. This is particularly convenient because archival records, research notes and the like may vary enormously in character.

Information entered into each record can be edited like word processing documents, such as copying or moving a block from one field to another, or deleting a section, as required. WordStar commands are used, which makes for a short learning curve, and a stand-alone version of the editor (without printing facilities) is also supplied for modifying the various ASCII control files. The editor supports block move, copy, delete, read and write to disk; word, character and line deletion and undo; string search; re-form paragraphs; margin and tab setting and word-wrap.

In another useful feature, the number and names of fields do not have to be the same for every record in the database, but any of the pre-determined patterns can be selected. Four different record patterns are provided – one for journal articles (with fields for author, title, date, journal name, volume, page number, and abstract); another for books (with author, title, publisher, date and so on), and one for chapter in a book, and finally an unformatted or free form. By editing the ASCII file which controls the form (known as the 'record definition' file), it is also possible to set up your own forms to suit your own requirements, say, for photographs, video recordings or research notes.

So if you are entering data from a variety of sources but all relate to the one project, you would have one data file, selecting the type of record which is appropriate to each type of data. For example, an archivist can enter into one database details about manuscripts, photos, newspaper clippings, correspondence, books and periodical articles using the most appropriate form for each item. If the data is entered into an unsuitable format, it can be changed to another one later using the 'coerce record' command.

Indexing

ANOTHER USEFUL feature of Archivist is the indexing. Every word in the database is automatically indexed, so you don't need to worry about indexing files and sorting the database. Although it is possible to restrict a search to a particular field, the normal search is global. Just enter the search word (wildcards, Boolean AND-/OR/NOT and 'fuzzy' or 'sounds like' searches accepted) and all occurrences will be found, whichever field/s they are in, unless the search word is on the Stop Word List. This is another ASCII file containing commonly used words which are excluded from indexing in the interests of disk space and speed. The default file includes all letters of the alphabet and numerals and such words as 'and', 'the' and 'which', but it can be edited to the user's requirements. A utility provided in the package allows inspection of database index files.

When a search is made, the records meeting the search condition are assembled into a 'found list' for display and other types of manipulation. A message on the screen indicates how many records are in the found list and which one is currently displayed. It is a circular list, so you move through it sequentially with the F9/F10 keys and finally back to the blank work record.

This found list can be pruned of unwanted records and printed or exported to create another database as a subset of the original or be used as data for other programs. During these processes, the original database is untouched – only the found list is used. The search criteria may be saved for re-run later.

Exporting and importing records

EXPORTING AND importing records is powerful and flexible, but not a task for the novice, unless it is the simplest case that is being undertaken, which is exporting for later re-importing to Archivist. The formats used in these operations are controlled by another ASCII file using certain codes which are all explained at length in the documentation. The printing format, which is simply a kind of export as far as Archivist is concerned, is also controlled by an ASCII file, with two popular defaults provided. Depending on the printer used, support is offered for bold, underline and italics. However, customising the printing format is also not the job for the novice. Archivist is not at its best in printing hard copy, being better used in the on-screen search mode or for printing to a disk file for later re-editing.

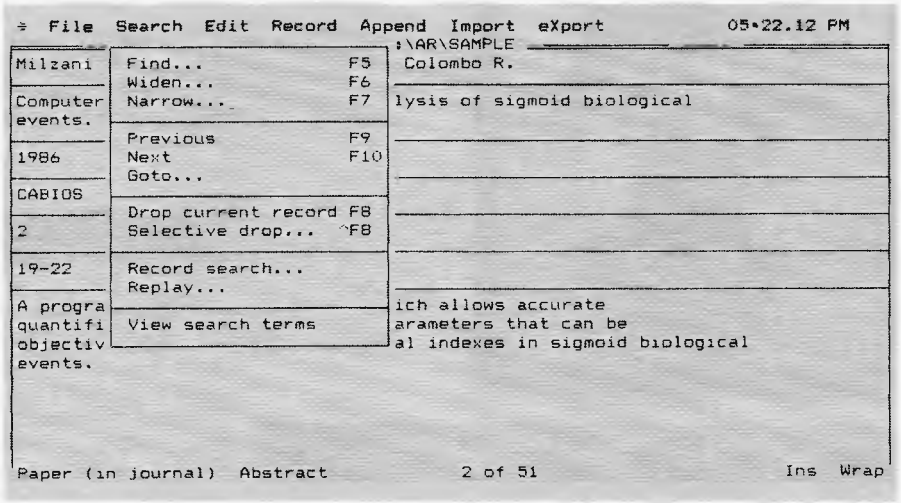
There is no way to browse through all the records in the database. The only way they can be displayed is through the

'search' option and the 'found list'. So the trick is to use a search condition that is likely to be met in every record, such as a wildcard like 'a*', or to employ a special code inserted in each record for the purpose.

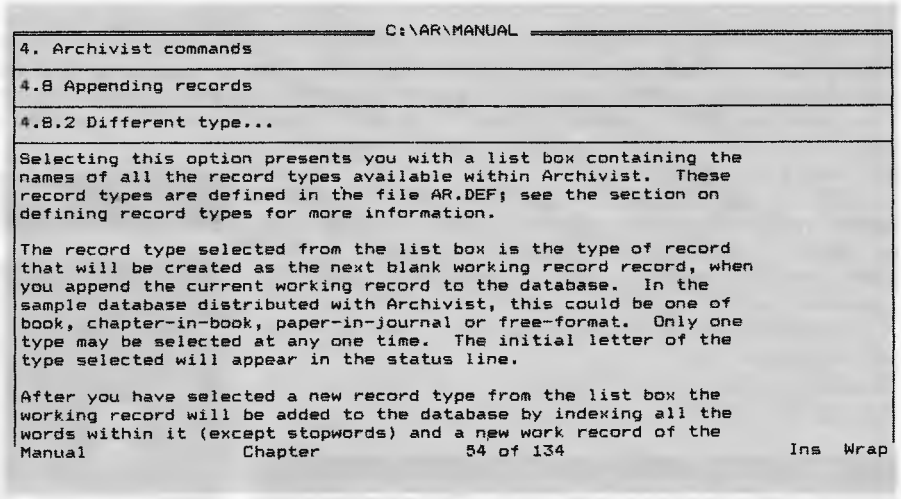
Actual entry of data is simple. Upon booting up, a blank working record is presented on the screen which can be filled with the required data, or an alternate form can be selected first. Field names do not appear on the main part of the screen as is common in database programs, but the field in which the cursor is located is displayed in the status line at the bottom, which also indicates the type of record form, and the status of the word wrap and insert toggles. Cursor arrow keys are used to move from field to field. When data entry is complete, press F2 and it is indexed and saved.

Conclusion

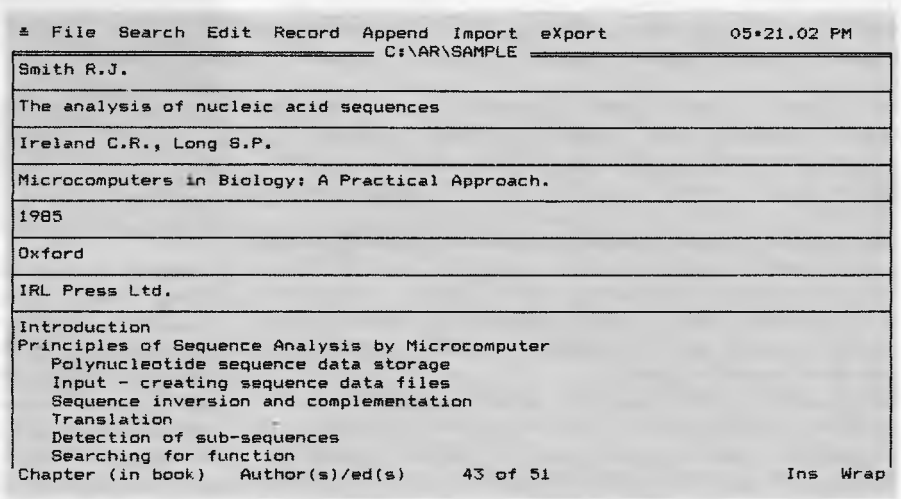
APART FROM THE complexities related to export, import and printing, Archivist is an attractive package, with many powerful customizing features, including macros and synonym entry. It is easy to install and may be configured to suit the user's requirements. It does not need a graphics adapter and is not fussy about printers. The maximum file size is 32 megabytes and the maximum number of records is over two billion! Each record can be up to 16K in size, with an unlimited number of fields. Archivist comes with full printed documentation, including a tutorial introduction, but the on-line edition is more recent than the manual. (The test version was numbered 1.01a and had some worthwhile improvements.) Context-sensitive help is also available. The program is produced in England by IRL Press, Oxford and can be ordered from the Australian agents, the Church Archivists' Society. □



Archivist's 'Search menu and Paper (in journal)' showing the second of fifty-one records in the Found List.



A page from Archivist's on-line manual.



The Chapter (in book) record format.

Product Details

Product: Archivist
Distributor: The Church Archivists' Society,
PO Box 756,
Toowoomba 4350 Qld
Price: $121
$6 demo disk

Apart from the complexities related to export, import and printing, Archivist is an attractive package, with many powerful customising features, including macros and synonym entry.

NEW CONNECTIONS

Edited by Mark Cheeseman

Token Ring for Mac

NETCOMM AUSTRALIA recently announced price reductions on Tri-Data's LanWay Token Ring adaptors for the Mac range. The LanWay boards operate at either 4- or 16Mbps, and are compatible with all Nubus Macs, including the Mac II range and the Mac LC. The company also manufactures a card suitable for mounting in the direct slot of the SE/30.

The cards are based around the Texas Instruments TMS380C16 processor, and can be switched between the two operating speeds under software control, thus avoiding user-unfriendly jumpers, and the card is claimed to perform better at 4Mbps than other cards of that speed. In addition, the use of Tri-Data's Netway 2000 SNA gateway provides Macs networked with Token Ring 3270 mainframe connectivity.

The cards are priced at $1895 each, and are distributed by NetComm, on (02) 888 5533.

AS/400 connectivity for Novell

NETWARE USERS can now gain access to IBM AS/400 minis through Novell's Token Ring and twinaxial AS/400 connectivity options. Novell introduced these products in response to user demand.

'We've increased our AS/400 connectivity efforts to meet the needs of the market', said Darrell Miller, Novell executive vice president of marketing and services. A March 1990 Computer Intelligence Report showed that 33 per cent of PC LANs at surveyed AS/400 sites are connected to the minicomputer.

'Many of our customers have requested that we provide the integration between their Novell LANs and their AS/400s. The introduction of our new AS/400 gateway option illustrates our commitment to our customers and our on-going support of IBM and its midrange systems,' says Gerry Machi, director of marketing for Novell communication products.

Novell's NetWare SNA Gateway v1.3 server software and NetWare 3270 LAN Workstation v1.2 client software have been certified to support Token Ring connectivity to AS/400 computers. This allows up to 64 IBM PCs, PS/2s or compatibles to access up to 64 concurrent host terminal/printer sessions through a single Token Ring link.

The NetWare 5250 Twinax Gateway allows a Novell LAN to access IBM AS/400s and System/3X machines via a twinax connection. Workstations on the LAN can emulate a variety of 5250 terminals to access applications on the minicomputer.

For more details, contact Novell, on (02) 413 3077.

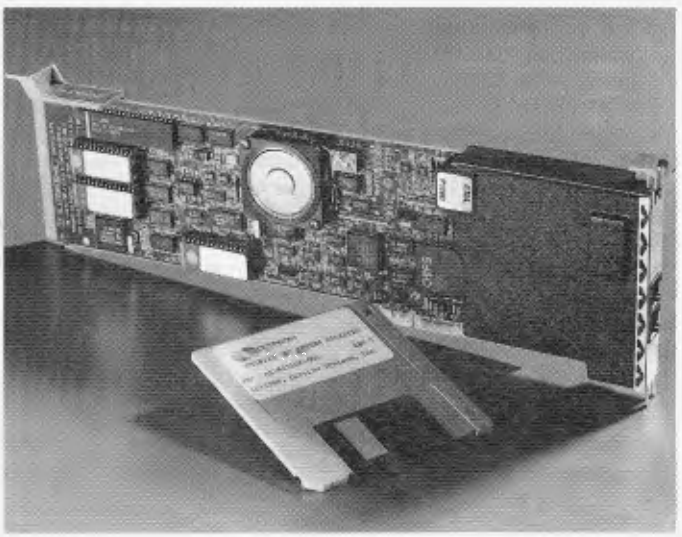
OTC Easifax

AN ADVANCED facsimile service developed by OTC Enhanced will be introduced to the Australian market this year, the quango's *International Communications Digest* reported recently. Called OTC Easifax, this new value-added service offers customers the opportunity to store and forward faxes to multiple destinations at specified times using pre-set address lists.

The new OTC system connects to existing fax machines on most telephone lines and PABX extensions, and will deliver faxes within Australia or overseas. Savings from compression techniques, digital technology, and traffic management allows OTC to offer customers highly competitive rates based on a fixed price per page for successfully delivered messages.

The Easifax service includes a special standby tariff with discounts of up to 30 per cent for off-peak delivery and there are no high up-front connection costs or fixed monthly charges. For more details, contact OTC, on (02) 287 5629.

PS/2 internal modem



Dataplex has just released a new 2400bps internal modem for Micro Channel computers, that is, most of the IBM PS/2 range. The modem operates at speeds of 300, 1200/75, 1200 and 2400bps, conforming to the relevant CCITT standards. The modem also incorporates MNP level 4 for error-free communications and higher throughput. The modem, as expected these days, is fully auto-dial and auto-answer, and can be configured with the standard Hayes AT command set. The modem can also be controlled through the CCITT V.25bis command set, if desired.

The modem is priced at $1196, including tax. For more information, contact Dataplex, on (03) 735 3333.

Motorola strategy

MOTOROLA'S NEWEST wireless data communications system, the Wireless In Building Network (WIN), has analysts questioning its strategy of relying on wireless communications for growth.

WIN will allow companies to use radio waves, instead of wires, to link their computer networks. The first product based on the new scheme will come out in the first quarter of 1991, with more due throughout the decade. It's designed for companies that move offices around regularly, and for old buildings where regulations may limit the amount of cable that can be run.

Al Zaborsky, general manager, strategic operations for Motorola in Arlington Heights, Illinois, will run the WIN strategy. He told Newsbytes that 'We did not announce pricing,' but 'we said we'd be price competitive.' He added, 'We don't think this is a niche market. We invested too much and too long for that to be the case.'

Buyers will have to compare WIN to wired alternatives, including the cost of running wires through old buildings. And in many cases, Zaborsky said, Motorola will have to win with WIN to succeed. 'The way you drive costs down is through volume. You can't survive with 5 per cent market share.'

Zaborsky said WIN's technology uses RF radio waves instead of infrared, which won't go through walls, giving it an advantage. 'This is faster than the other wireless technologies, it's more transparent and it will work well in closed environments, where infrared won't work,' he said. WIN's 18 gigahertz signal will not be shared under its FCC license, so the only interference to it will come from illegal transmissions or factory equipment.

John Pemberton, program director, wireless communication for the Gartner Group, Stamford, Connecticut, disagreed with Zaborsky's analysis and remains sceptical about Motorola's chances. 'They're not trying to compete on a per-unit price with wired systems. The strategy is that savings are in moves and changes,' he told Newsbytes. 'There isn't a large user community that's prepared to accept this. Few of our clients have thought about it. Motorola will have trouble carving a market.'

Pemberton added that the 18 gigahertz signal will, because it's a microwave, have trouble going through walls. 'They have an omnidirectional antenna, but they need a tight fit to make it work,' he said. 'And on the Motorola system, the frequency range requires a high-cost installation. The cost will be significant. If someone has a good wiring plan in place, this won't knock it out. But this might work in new buildings or new locations in buildings without a system.'

Still, Pemberton is excited about the prospect of wireless networks replacing wires in the future. 'This is not a single product, but a whole lot of things. It will be exciting long-term. You'll see hybrid systems by the turn of the century that are commonly accepted.'

– Dana Blankenhorn, Newsbytes

Telecom's SPINE

CONTINUAL MODERNISATION of the Australian telephone network is a vital function of Telecom Australia's charter, in which it aims to improve customer service and optimise the chances of network survival. Integral to this goal is the System for Pattern Identification and Network Evaluation – SPINE – a program developed by Telecom since 1987.

SPINE provides the facilities to track failed telephone calls and diagnose a common denominator, facilitating the fastest and most accurate means of solving the technical problems causing the failure. It is constantly being expanded and enhanced to meet the developing needs of the rapidly growing network, and received a new lease on life last year when the Co-Cam Computer Group installed four new HP '386 Vectra PCs at Telecom's Sydney and Melbourne network management centres.

These centres are the focal body responsible for maintaining the ongoing well-being of the telephone network. Decisions on network management and control actions are made by the centre based on detailed knowledge of all aspects of the entire network, achieved by constant real-time monitoring.

Computerisation plays an important part in the monitoring and analysis of network performance, involving the collection of data from Telecom operators, and directly from the common channel signalling network.

'We basically sit above all the telephone exchanges, collecting information on their status to enable us to determine the overall

International Telecommunications Users Group – a profile

FROM AN AUSTRALIAN perspective, the International Telecommunications Users' Group (Intug) is one of those rather nebulous European based international bodies whose name crops up occasionally in the news and whose emissaries occasionally grace Australian shores. Other than that, it remains largely a mystery.

Our own Australian Telecommunications Users' Group (ATUG) is a member, as is the New Zealand counterpart, the Telecommunications Users Association of New Zealand (TUANZ). They are two of 22 such member organisations in 15 countries around the world. Intug even has its own Regional Vice President for Asia/Pacific, John Kearney Communications Technology Manager of Qantek, the Information Technology arm of Qantas Airways. Intug also has over 40 Associate Members, large international companies which recognise the importance of international communications to their business.

Intug is heavily in favour of liberalisation of international communications and is an ardent champion of international standards. In a world where there are many fractions pushing different objectives, Intug claims to speak with one voice for its geographically scattered membership. According to its Executive Director, George McKendrick 'We have almost no disagreements about general directions. Even in the unliberalised countries, the users want to be liberalised.'

Influencing international communications developments would seem likely to be an endeavour requiring massive resources. The other major players are multinational communications manufacturers, the PTTs, the major industrialised nations and even blocks of these nations acting in concert through organisations such as the Council of European PTTs (CEPT). Yet Intug boasts only a tiny office in a leafy West London Mews, premises which it shares with a specialist recruitment company. McKendrick is one of only three paid employees, none of them full time.

The small scale of the Intug secretariat belies the scope and influence of the organisation, influence exercised largely through key individuals in its member organisations who act also for Intug. The broad objective of the organisation is 'to ensure telecommunications policy issues are discussed'. The Group was founded in 1974, primarily as a European organisation to interface with the European Community.

Intug recently restructured itself into three regional groups: Europe, America and the Asia/Pacific, each with its own Vice President. As VP for Asia/Pacific, John Kearney's responsibilities include raising awareness of Intug in the region and building Intug's membership and influence by encouraging the establishment of user groups in countries such as Singapore and the Philippines, where none presently exist. Apart from Australia and New Zealand, the only user groups in the region are in Hong Kong and Japan.

One of Intug's major avenues of influence, and its largest expense, is its membership of the International Consultative Committee on Telecommunications (CCITT), a body of the International Telecommunications Union (ITU), and of the European Telecommunications Standards Institute (Etsi).

The organisation's influence is exerted largely through individuals in member organisations, experts in their respective fields, who represent Intug on these various international bodies. McKendrick claims that this approach has been very successful over the years. 'We have people beavering away all over the world, doing specific things and reporting back to this office.'

Since its foundation, Intug has worked hard to build up its involvement in these key international bodies. McKendrick claims it is now highly regarded by the ITU, and the two have held a number of joint conferences. Membership however does not come cheap. 'It costs us a lot, we have to pay the same as a small country. We don't get voting rights, but we can attend meetings, and submit papers,' McKendrick said.

He claims Intug enjoys somewhat favoured status as a non-nation member of the ITU. It was invited to the major conferences in Melbourne in 1988 and to the Nice Plenipotentiary in May 1989. 'We take that very kindly because there are other people in CCITT who are not countries, people like Swift (the Society for Worldwide Interbank Financial Transactions), IATA (the International Air Transport Association), and the international press, but we were the only one invited to these major occasions.'

Intug has extended its involvement in international bodies to include the OECD, and McKendrick believes the organisation is now gradually acquiring more influence through an understanding of how international decision making bodies operate.

Despite its economic focus, McKendrick said the OECD, which has 24 member countries, exercised a lot of influence in the information technology area. 'Because it is a more generally economic body we represent the expertise in telecommunications matters. We work through the OECD's Business and Industrial Advisory Committee (BIAC) and we feel we have a lot of influence there'.

He claims the OECD is a useful forum because the people who attend are not the PTTs in general. 'Unlike the ITU, BIAC representatives are almost invariably the Board of Trade, the Chancellor of the Exchequer or the finance people. They may be taking a different stance from the PTTs, and it's important for us to get our views across to these people.'

Intug also tries to exercise its influence in international bodies through its individual member organisations. 'It is countries who are the members at the top level of these organisations. The way in which we can influence countries is to get at the representatives of these individual member countries, and that is where we are working now. Because we have 22 members in 15 countries we have people on the ground who will do this.'

Not surprisingly where this approach has been most successful is close to Intug's home, the UK. 'We work closely with the Department of Trade and Industry and they are very inclined to seek our opinion. So we can influence them when they go to these international bodies,' McKendrick said. He added that Intug would like to replicate this achievement elsewhere, but has achieved only limited success in some countries.

One area where McKendrick sees the greatest scope for expansion is in boosting the number of Intug's associate members, but recruitment is difficult. 'We feel there should be ten times as many big company members of Intug supporting us. They benefit from our work at the end of the day. We would like a lot more and a better distribution. There are relatively few in Continental Europe, and almost none anywhere else. None in Australia or New Zealand.'

McKendrick explained the low membership numbers because 'Things like international telecommunications leave people cold. Companies who depend on international telecommunications don't feel it is their job to get involved.'

The direct cost of membership is modest, 4400 Swiss Francs (about $4500). But there is additional commitment in sending people to meetings three times a year. As these are generally held in London, this is particularly onerous for Asia/Pacific members.

However, it is not the money which deters large corporations. 'It is bringing their minds to bear on the fact that they ought to participate; most chief executives who could authorise membership don't think it applies to them.'

McKendrick identifies associate members as 'progressive companies who have always supported organisations such as Intug: ICI, BP, Shell and Unilever in the UK and in the US Citibank, IBM and American Express.'

Intug has a number of priority areas which it wishes to influence, but standards has always been one of its prime concerns. McKendrick is optimistic that the chances of global agreement on future telecommunications standards are now looking reasonably good, far better some years ago when Europe decided on a 2 megabit per second standard for broadband links (known as Megalink in Australia) while the US opted for 1.5 megabits.

'We are not so worried about regional standards (versus international standards) as we were even a year ago. the situation is containable.' McKendrick said. 'Intug has been encouraged by a recent standards summit held in Washington DC. 'Nothing concrete has come out of it, but the fact that it happened at all is important,' he said.

He identified one of Intug's main 'duties' as being 'to guard against a tendency by some people in Europe to want to promote European standards against Japanese and US standards.'

Apart from its membership of CCITT, Intug is well represented on Etsi. A representative of its French member organisation is vice chairman of the General Council of Etsi, and Etsi's Business Services Committee is chaired by Jan Thurmer, a representative of another Intug member organisation who Intug was invited to nominate for the position. 'He goes to the meetings of Etsi on our behalf, chairs this group and influences them in the direction users wish to take,' McKendrick said.

'We have been concerned all along that worldwide standards will prevail. There has been a proliferation of standards recently in so far as we've been able to influence things we've leaned very heavily in favour of, getting Etsi to agree that international standards would always take precedence over regional standards . . . Etsi has announced that and the EEC has publicly accepted that this is the way it should be.'

Apart from standards, major issues concerning Intug are liberalisation of international satellite systems, and allocation of radio frequencies. The International Satellite Agreement seeks to restrict competition to Intelsat from separate satellite systems, and it is under review. Frequency allocations will be reviewed at a major conference, the World Administrative Radio Conference, to be held in Seville in 1992.

To keep members informed of its activities, Intug produces a quarterly newsletter, available to non-members for 200 Swiss Francs per year, and the organisation even accepts membership from individuals for an annual membership fee of 250 Swiss Francs and a joining fee of the same amount. The organisation can be contacted at 18 Westminster Palace Gardens, Artillery Row, London SW1P 1RR, England. Phone +44 71 799 2446, fax: +44 71 799 2445.

– Stuart Corner

health of the network.' said John Martin, principal engineer for the network management centre. 'When problems occur, we use this overview – the data collected from each exchange – to find a common thread to the failures and to create the pattern which points out how and why the fault is occurring. SPINE is the system by which this pattern matching is achieved.

The SPINE system has been upgraded several times since it was originally put in place on 286 computers. These were later upgraded to 386s as network demands increased, and now to the HP 486s. The SPINE system is a relational database running under Xenix, with 'data churning in and out 24 hours a day', said Martin. 'We now have the processing power which allows us to accumulate, access, and analyse the vast amount of data required to accurately pattern match faults and thereby assist in the smooth operation of the telephone network.'

Network management under Windows 3.0

NOVELL HAS ALSO announced LANtern Services Manager – a network analysis system running under Microsoft Windows 3.0. The package allows network managers to manage Ethernet networks from a central location.

The LANtern Services Manager logs all network activity, so that events which occur while the network manager is not present can be recalled for later review. The network can also be monitored remotely via a serial link and modem, allowing off-site diagnosis of

problems. Automatic alarms can also be set to alert the network manager when pre-set conditions occur, such as a high collision rate, for example.

The recorded data can be viewed in tabular or graphical form, and can also be exported in dBase or Lotus 1-2-3 format for customised processing.

LANtern Services Manager runs on a '386-based computer running Windows 3.0, and is due to ship this month. For pricing and other information, contact Novell, on (02) 413 3077.

Canadian monopoly to go?

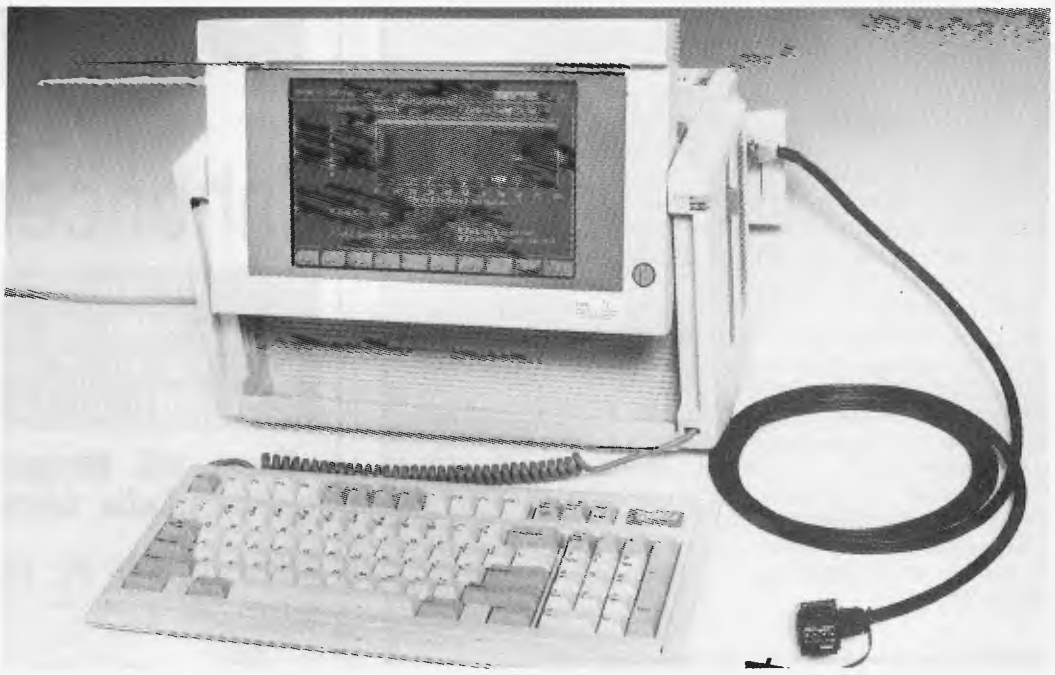
A RECENT ISSUE of OTC's *International Telecommunications Digest* carried a report relating to the discussion of competition for Canada's sole telecommunications carrier. With a population of 25 million, and a land mass not dissimilar to our own, it will be interesting to see what eventuates over there. The country's regulatory agency is to hold public hearings this year to decide whether to introduce competition on long-distance routes. However, Bell Canada has warned that there is not room for a second carrier with a population of that size, and local rates are certain to rise.

Why buy . . . ?

TECH-RENTALS has recently acquired the newly released novell 325TR Token Ring LANalyzer, and it is now available for rental. The LANalyzer was specifically designed to monitor, troubleshoot, and characterise IBM Token Ring networks running at 4Mbps, and is intended for use by LAN managers, software developers, and service engineers.

The special network board contains its own '286 processor and 2Mb of memory, and is controlled through a Compaq Portable 386 computer with a 40Mb hard disk, and comes with all necessary software. The system is rented as a complete unit.

With the LANalyzer, the user can monitor and capture Token Ring packets on defined criteria and triggers, monitor network activity by station, and display network statistics on a real-time basis, or save them to a disk file. For more details and rental rates, contact Tech Rentals in your capital city, or on (03) 879 2266.



Tech-Rentals' LANalyzer comes complete with a Compaq Portable 386, for ease of transportation around the site.

Laptop LAN adaptors

DATEX SYSTEMS of Taiwan has released a new range of pocket LAN adaptors for laptop and notebook computers. The adaptors are in appearance similar to many pocket modems on the market, and plug directly into the laptop's parallel printer port, leaving any I/O slot available for other purposes such as a modem, and permitting use on machines which do not have a suitable expansion slot.

The LAN adaptor is powered internally from an AC adaptor, so that it takes no power from the laptop's own battery. The adaptors come with drivers to work with NetWare, IBM's PC LAN Program, PC-NFS, 3Com 3+Share, and TCP/IP, as well as D-Link's LANsmart operating system.

There are five models in the range, for thin, thick, or twisted-pair Ethernet, and coaxial or twisted-pair ARCnet. The LAN adaptors are priced at $699 (ex tax), and are distributed in Australia by Kincolith Pty Ltd, on (02) 977 4466.

Primary electronic collection points

National – Australian BBS Registry (08) 281 0433

ACT – PCUG Bulletin Board (06) 259 1244

NSW – 2000 & Beyond AliveBBS (02) 544 7123

Vic – Eastwood Systems (03) 870 4623

Qld – The Galaxy GateWay Computer System (07) 207 8900

SA – Oracle PC-Network (08) 234 0791

WA – 1990 Multiline (09) 370 3333

Tas – Tassie DataBank (003) 44 9762

BBS Listing 9011

Mon 5 Nov 1990
New systems: 23
Online: 5
Unknown: 1
Temporarily Offline: 1
Permanently Offline: 16
Name Change: 3
Amended: 38
Total Systems: 520

NEW SYSTEMS

NEW SOUTH WALES

A. D. Technologies BBS
Sysop: Warren Casson
Phone: (02) 631-7141
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Amiga Magic BBS
Sysop: Mandrake
Phone: (02) 750-6053
Baud: V21 V22 V22bis B212
Access: Reg VA
Computer: Amiga 2500
DOS: AmigaDos
BBSoftware: Tag-BBS

Aust Amateur Space Engineering Society
Sysop: Paul Hamilton
Phone: (02) 428-3759
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Hours: Daily: 2030 – 0600
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Wildcat!

Data Express BBS
Sysop: Christian Kraus
Phone: (02) 564-2172
FidoNet: 3:712/513
Baud: V21 V22 V22bis B103 B212
Access: Reg VA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: RemoteAccess

EasyComm BBS
Sysop: Michael Alihodic
Phone: (02) 558-8804
FidoNet: 3:712/603
Baud: V21 V22 V22bis V23
Access: Reg LVA
Hours: Daily: 2000 – 0700
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Gateway To Windows
Sysop: Laurance Singer
Phone: (02) 281-9203
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

MIDI BBS (Newcastle)
Sysop: Don Staples
Phone: (049) 56-2126
SIGnet: 28:2200/106
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess+

Mindarri BBS
Sysop: Jim McGregor
Phone: (046) 55-2058
FidoNet: 3:713/620
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Hours: Daily: 2100 – 0600
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Razorback's Realm
Sysop: Michael Morgan
Phone: (02) 540-4275
Baud: V21 V22 V22bis
Access: Mem Reg LVA
Computer: IBM 386sx Clone
DOS: MS DOS
BBSoftware: RemoteAccess

The Accumulator BBS
Sysop: Brendan Heffernan
Phone: (02) 520-3219
Baud: V21 V22 V22bis
Access: Reg LVA
Hours: Daily: 0630 – 2030

The Fourth Dimension
Sysop: Mentaat Shanahan & Prilife Akharan
Phone: (049) 61-6178
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

The Future BBS
Sysop: Maxim Staroselsky
Phone: (02) 988-4336

Complete BBS Registry Listing

WE PUBLISH UPDATES – new systems and changes to the status of other systems – for the National BBS Listing every month. The complete listing is available for download from the primary electronic collection points in each state – it is about 600K compressed. If you would like a current complete listing without having to download it, send an IBM-formatted floppy disk to: BBS Listing, *Your Computer*, PO Box 199, Alexandria 2015 NSW. Registration of Bulletin Boards is only accepted electronically at the primary electronic collection points – please address all enquiries through them.

SIGnet: 28:2300/111
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 1730 – 0700
Computer: IBM 386/33 Clone
DOS: OS/2
BBSoftware: RemoteAccess

VICTORIA

Bairnsdale BBS
Sysop: Jonathan Waller
Phone: (051) 52-5821
Baud: V21 V22 V22bis
Access: Public
Hours: Mon – Sat: 1800 – 0830
Sat – Mon: 1230 – 0830
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Searchlight

Compumania! BBS
Sysop: Peter Tonoli
Phone: (03) 818-0863

MultiNET: 9:2460/401
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

MODEMEX BBS
Phone: (03) 331-0385
Baud: V21 V22 V22bis V23
Access: Public
Computer: Tandy 1000a
DOS: PC DOS
BBSoftware: QuickBBS

MicroSys
Sysop: Miki Bolvary
Phone: (03) 887-1756
Baud: V22 V22bis B103 B212
Access: Reg VA
Hours: Daily: 2130 – 0930
BBSoftware: RemoteAccess

Online Real Estate
Sysop: K. Eldridge
Phone: (03) 846-4411
Baud: V22bis
Access: Public
Note: Must have VT100 emulator. Send BREAK for lower baud rate

SCAN AUSTRALIA BBS – Line #2
Sysop: Tony Linford
Phone: (051) 76-1669
FidoNet: 3:632/322
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Searchlight

The Surgery BBS
Phone: (03) 576-9071
Baud: V21 V22 V22bis V23 V32
Access: Reg
BBSoftware: RemoteAccess

QUEENSLAND

Sunseeker BBS
Sysop: Jay Cooper
Phone: (075) 97-3138
Baud: V21 V22 V22bis B103 B212
Access: Mem Reg VA
Hours: Weekdays: 1700 – 0700- Weekends: 24 Hours
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

SOUTH AUSTRALIA

Elizabeth Park Bbs
Sysop: Allan Laws
Phone: (08) 255-0298
FidoNet: 3:681/870
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: Amstrad PC1512
DOS: MS DOS
BBSoftware: Opus

WESTERN AUSTRALIA

Adam's Apple
Sysop: Simon Holmes
Phone: (09) 385-1350
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Mem LVA
Computer: Macintosh SE
DOS: HFS
BBSoftware: Second Sight

The Wizards Den
Sysop: Andrew Harwood
Phone: (09) 364-8848
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Maximus

UPDATES

NEW SOUTH WALES

Another World Opus CBCS
Status: Permanently Offline

Autodesk Animator User Group (AAUG)
Status: Temporarily Offline
Note: Unavailable until 30 Sep 1990 due to system relocation

Beauford BBS
Status: Online
Sysop: Roger Cooper
Phone: (047) 58-6542
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Blackboard BBS
Sysop: Will Black
Phone: (02) 692-9149
FidoNet: 3:712/522
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Disaster Area BBS
Sysop: Victor Bouch
Phone: (02) 988-3287
FidoNet: 3:711/422
SIGnet: 28:2300/100
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Reg VA
Computer: Blue Chip PC 286
DOS: MS DOS
BBSoftware: RemoteAccess

ENT-MOOT Educational BBS
Sysop: Graham Acworth
Phone: (066) 22-0045
FidoNet: 3:640/662
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Amiga 2000
DOS: AmigaDos
BBSoftware: Paragon

Freedom Express BBS
Status: Permanently Offline

HomeGrown BBS
Status: Permanently Offline

I-C.BBs & Computers
Sysop: Jodi Jackson
Phone: (02) 319-0925
SIGnet: 28:2100/100
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: RemoteAccess+

Koala Country
Sysop: Warren Leadbeatter
Phone: (02) 671-5538
GTNet: 302/016
Baud: V22 V22bis V32 B212 HST
Access: Mem Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

MEGA Technology TBBS
Sysop: Stan White
Phone: (049) 58-7099
FidoNet: 3:711/490
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: TBBS

Outwest BBS
Status: Permanently Offline

PC Users Group – Compaq BBS
Note: Now Called Sydney PC Users Group Ltd – Compaq BBS

Phantom Connection BBS
Sysop: Bob James
Phone: (02) 398-2413
FidoNet: 3:712/311
Baud: V21 V22 V22bis V23
Access: Reg VA
Hours: Daily: 2000 – 0600
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess+

Programmers BBS
Status: Online
Sysop: Felix Tsang
Phone: (02) 875-1296
Baud: V21 V22 V22bis V23 V32 PEP
Access: Mem Reg
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Maximus

Prophet BBS
Sysop: Helen Lewis
Phone: (02) 628-7030
Baud: V21 V22 V22bis
Access: Mem Reg LVA
Computer: Compaq 386/25
Note: Members have access to multiple lines and high speed modems.

Railway Preservation Industries BBS
Sysop: Craig Dewick
Phone: (02) 544-1060
Baud: V22 V22bis
Access: Reg VA
Computer: Applix 1616
DOS: 1616/OS
Note: Ringback System

RCOM C-64 BBS
Status: Permanently Offline

Sydney Information Xchange
Sysop: Lawrence Gould
Phone: (02) 560-8296
GTNet: 302/008
Baud: V21 V22 V22bis V23 V32
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

Sydney PC Users Group Ltd – Compaq BBS
Sysop: Bruce Edney
Phone: (02) 540-1842
FidoNet: 3:712/505
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Compaq
DOS: PC DOS
BBSoftware: Opus

Sydney PC Users Group Ltd – QUINDEM OPUS
Sysop: Chris Kelly
Phone: (02) 698-8769
FidoNet: 3:712/602
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM PC Clone
DOS: PC DOS
BBSoftware: Opus

TechComm BBS
Status: Online
Sysop: Darren Blackley
Phone: (02) 628-0777
FidoNet: 3:713/802
SIGnet: 28:2300/109
Baud: V21 V22 V22bis V23
Access: Mem Reg
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

TeleInfo Australia
Sysop: Ross Delaforce
Phone: (02) 975-1099
FidoNet: 3:714/407
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: TBBS 32 Line

Ten Forward BBS
Status: Permanently Offline

Terminal Madness RACS
Status: Permanently Offline

The Network Connection BBS
Status: Permanently Offline

The Red Dragon Inn
Status: Permanently Offline

Warrigal's BBS
Status: Permanently Offline

VICTORIA

Austcom Image
Sysop: Captain
Phone: (03) 752-0109
Baud: V21 V22 V22bis V23
Access: VA
Computer: C-64
DOS: Lt. Kernal
BBSoftware: Image

BBS 2000
Sysop: Frank Donato
Phone: (03) 894-3540
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Wildcat!

Bits & Bytes
Status: Permanently Offline

Bloodguard BBS
Sysop: Mark Weselmann
Phone: (03) 399-1737
FidoNet: 3:635/532
Baud: V22 V22bis
Access: Public
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Opus

Comet BBS
Sysop: Mark Dods
Phone: (03) 879-0108
FidoNet: 3:633/377
Baud: V21 V22 V22bis V23
Access: Mem
BBSoftware: QuickBBS

D'Bridge! Wildcat! Support-/ANZ-ASIA.
Sysop: Gordon Castle
Phone: (03) 563-2496
FidoNet: 3:632/306
SIGnet: 28:4100/20
Baud: V22bis V32 PEP
Access: LVA
Computer: IBM Model 80
DOS: PC MOS/386
BBSoftware: Wildcat!

dBoard
Sysop: John Kewley
Phone: (03) 819-7104
FidoNet: 3:632/375
Baud: V21 V22 V23
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: JBBS

Decadence
Status: Online
Sysop: Sandy Tadman
Phone: (03) 794-7949
FidoNet: 3:633/103
Baud: V22 V22bis V23
Access: Public
BBSoftware: QuickBBS

Flight Deck BBS
Note: Now Called Austcom Image

Green Griffon Inn
Status: Permanently Offline

Metamorphosis CBCS
Sysop: Laserblade
Phone: (03) 560-2659
MultiNET: 9:2086/2
Baud: V22 V22bis
Access: Public
Hours: Daily: 2100 – 0800
BBSoftware: Opus

Micom CBCS
Sysop: Peter Jetson
Phone: (03) 758-8642
FidoNet: 3:633/371
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM Clone
DOS: MS DOS
BBSoftware: Opus

Night Owl BBS
Sysop: Ron Page
Phone: (059) 85-4023
FidoNet: 3:632/315
Baud: V22 V22bis
Access: Mem
Computer: IBM
DOS: MS DOS
BBSoftware: RemoteAccess

Niveous
Status: Online
Sysop: Rupert Russell
Phone: (053) 33-2170
Baud: V21 V22 V22bis V23 V23ORG B103 B212
Access: Public
Computer: IBM Clone
DOS: MS DOS
BBSoftware: QuickBBS

Rastar
Status: Permanently Offline

Redback BBS
Status: Temporarily Offline
Note: Unavailable untilDue to Hardware Failure

S.I.G
Sysop: Avatar & Tikva
Phone: (03) 830-1584
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM 386 Clone
DOS: PC DOS
BBSoftware: RemoteAccess

SCAN AUSTRALIA BBS – Line #1
Sysop: Darren Crick
Phone: (051) 76-1571
FidoNet: 3:632/321
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: Searchlight

The Great MacHouse
Sysop: Matthew Simpson
Phone: (03) 561-6942
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Public
Computer: Macintosh
DOS: HFS
BBSoftware: Second Sight

The Image BBS
Status: Unknown

The Junction BBS
Sysop: Dale Robinson
Phone: (03) 311-7317
Baud: V21 V22 V22bis V23 V23ORG
Access: Public
Computer: Atari PC 3
DOS: MS DOS
BBSoftware: Opus

The Thin Red Line
Note: Now CalledThe Junction BBS

The Underground
Sysop: Moz
Phone: (03) 840-1565
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: DLX
Note: Members only between 2000 – 2359

QUEENSLAND

Sun Central BBS
Status: Permanently Offline

THE LIGHTHOUSE BBS
Sysop: Peter Genrich and Stephen Fraser
Phone: (074) 91-1167
Baud: V21 V22 V22bis V23 V32
Access: Mem VA
Computer: Cleveland 286
DOS: MS DOS
BBSoftware: GTPower

The Proteus
Sysop: Joseph Mckinnon
Phone: (07) 800-3521
SIGnet: 28:1100/130
Baud: V21 V22 V23
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS
Note: ANSI/Avatar

SOUTH AUSTRALIA

Alternate Reality
Sysop: Robin Hansen
Phone: (08) 362-6288
Baud: V22bis
Access: Public
Computer: IBM AT Clone
DOS: Dr Dos
BBSoftware: RemoteAccess

Nightline
Sysop: Tony Sander
Phone: (08) 255-0697
FidoNet: 3:681/868
MultiNET: 9:8546/4
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2200 – 0800
Computer: Olivetti PCS 286
DOS: MS DOS
BBSoftware: RemoteAccess

Saturn V
Sysop: Chris Kilgariff
Phone: (08) 364-2302
FidoNet: 3:680/824
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 0600 – 0300
Computer: IBM XT CLone
DOS: MS DOS
BBSoftware: RemoteAccess

Trivia BBS
Sysop: Daron Ryan
Phone: (08) 377-1067
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM Clone
DOS: MS DOS
BBSoftware: QuickBBS

WESTERN AUSTRALIA

1990 MultiLine
Sysop: Graeme and Gloria Platt
Phone: (09) 370-3333
FidoNet: 3:690/654
Baud: V21 V22 V22bis V23 V32 B103 B212 PEP
Access: Mem LVA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: TBBS

2280 BBS
Status: Permanently Offline

Pilbara BBS
Sysop: Mick Lazic
Phone: (091) 85-2754
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Commodore C128
BBSoftware: IMAGE
Note: Supports ASCII/ANSI/Commodore Graphics

Tau Ceti
Sysop: Stephen Darragh
Phone: (09) 341-2872
FidoNet: 3:690/662
SIGnet: 28:3100/3
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: IBM 386/25 Clone
DOS: MS DOS
BBSoftware: Maximus

WEST-SIDE BBS
Sysop: Troy Grant
Phone: (09) 221-2457
FidoNet: 3:690/663
SIGnet: 28:3100/12
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Ultima 386
DOS: MS DOS
BBSoftware: RemoteAccess

TASMANIA

Implosion BBS
Status: Permanently Offline □

LAPTOP CLINIC: DOING WITHOUT DISKS!

Tom Moffat has compiled a way to make your laptop work faster and extend its battery life.

COMPUTERS ARE GETTING bigger and bigger, and as their memories expand, so do the size of the programs to run on them. Bigger programs mean more disk storage, and many of the latest offerings demand the use of a hard disk. Some will let you use floppies, grudgingly, if you're prepared to wait forever for things to happen and if you don't mind swapping disks every few seconds.

This 'bloating' of software is in direct contravention of the concept of laptops. We want things smaller, not bigger. We can, of course, buy laptops with hard disks, but that's doing it the hard way; there are methods to satisfy software's demands for hard disks while first using floppies, and then no disks at all. This also extends battery life to the maximum, and disk wear and tear, and frustration, are cut to the minimum.

One thing modern laptops aren't short of is memory. Even the smallest machines come with 512K or so, and the latest crop seem to have standardised on a megabyte, cut up as 640K conventional memory, and the rest as extended memory. The extended memory can be used to run bloated programs, or you can set it up as a non-volatile Ram disk that works for all intents and purposes like a normal disk drive, but without any moving parts and it's as fast as the wind.

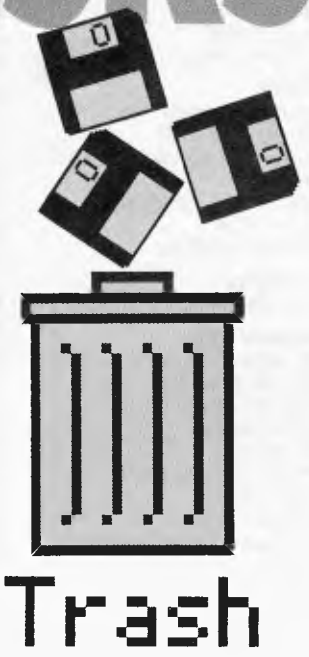
If I'm using one of the popular C compilers in the traditional way, the program loads first one file off the disk, and then another, and then another, until the program I'm working on is either compiled (or, more likely, rejected by the compiler). In the case of Hi-Tech C there are up to seven individual loads from the disk, for the pre-processor, intermediate code generator, assembler code generator, and so on. None of these files are remarkably big; the largest is around 98K.

Using multiple files is a popular technique since each file can run and then clear off, letting the next file occupy the same memory. So Hi-Tech C, which is a full-blown professional standard compiler, can run in as little as 128K of memory. The price you pay of course is that every time you attempt to compile a C program, you have to wait while each file loads and the disk spins on its merry way – with floppies the wait will drive you bananas.

Now with our laptops we're not restricted to 128K – we've got 640 to play around with, as well as that nice Ram disk with 370K or so. The immediate temptation of course is to try to load all the compiler files into the Ram disk, so that they are loaded instantly while using just about zilch battery power.

But a big C compiler, or a big anything for that matter, just won't fit in 370K. What to do? How about two Ram disks? Remember that the 'official' Ram disk is in extended memory, so you've still got the normal 640K sitting there with most of it going to waste. Your Dos disk will have a program called Vdisk or something similar that will install a Ram disk in the normal 640K area, completely independent of the other Ram disk.

You can adjust the size of the Vdisk to tailor it exactly to your intended application so nothing goes to waste. You end up with several disk drives made up of the two Ram disks, one or two floppies, and possibly another 'drive' containing Dos in Rom. You can set up each application on its own 720K floppy disk, so that when you boot from that disk the second Ram disk is set up, and then all your compiler files or whatever are copied onto both Ram disks. From then on everything runs in Ram, and you can put your floppy back to bed.



Getting practical

THE CURRENT concept of a computer is as a 'platform' upon which you pile a heap of software you hope to run. However, a laptop is not a platform – it's a shoebox! You open the lid, cram stuff in, and then slam the lid shut before the whole works comes springing out again. We will now look at ways of cramming stuff into a laptop without making its sides bulge out too much. We will use four examples: a couple of C compilers, an assembler package, and finally the word processing system I'm using right now. You can see how these have been done and maybe squeeze some of your own applications into your laptop in a similar way.

First to Power C, an el-cheapo compiler, that I've spent many long hours with, and it would have been a lot more hours had I not worked out how to free it from its floppies and let it slither around in the laptop's Ram disks. Power C is a big package, and it was touch and go – it almost didn't fit.

After I played with it for awhile I found I didn't need all the files in the package; for instance, the file to make use of an 8087

math processor could be left aside since I don't have one. I worked out what files I did need, and then copied them onto a 3.5-inch 720K disk along with Dos, the Qedit editor, and some small .BAT files. That filled up all but 63K of the disk.

To fire up Power C it is only necessary to put the disk in drive A:, hit Ctrl-Alt-Del to boot the laptop, and sit back for a few moments as the disk spins away, copying files hither and yon. When everything stops the machine contains two Ram disks, set up as shown in the top part of Figure 1.

The non-volatile hard Ram, drive C:, is meant to be the working disk, but it's also loaded up with several library files (Power C calls them .MIX instead of .LIB). That, along with the editor and some other stuff, leaves 128K for source files and the object files they generate.

There is a fine balancing act between taking more user memory for a bigger Vdisk drive D:, and establishing the library files on the working Ram disk, Drive C:. If drive D: takes too much user memory, the compiler squawks about running out of memory and refuses to compile. But if you heap too many files into drive C: you run out of working room, and the compiler grizzles about 'disk full'.

The arrangement in Figure 1 was arrived at by trial and error, juggling the size of drive D: against free memory until nothing bombed out. With this set-up you can't compile enormous programs, but it's still quite useful. The biggest program I've run through it is a tide table generator that's full of number crunching. It compiles to an .EXE file about 38K long from a source file 6K long, without accessing either mechanical disk drive.

Is all the messing about worthwhile? Well, with everything in Ram, compiling TIDE.C takes 37 seconds from when the 'compile' command is given to when

```
ECHO OFF
IF NOT EXIST C:COMMAND.COM COPY COMMAND.COM C:
SET COMSPEC=C:\COMMAND.COM
COPY \HITECH\CPP.EXE D:
COPY \HITECH\P1.EXE D:
COPY \HITECH\CG86.EXE D:
COPY \HITECH\AS86.EXE D:
COPY \HITECH\LINK.EXE D:
COPY \HITECH\OBJTOHEX.EXE D:
IF NOT EXIST C:Q.EXE COPY Q.EXE C:
echo Specify TINY or SMALL memory model:
```

(now we do one or the other of the next two operations...)

Tiny.BAT:

```
echo off
echo Establishing TINY model compiler
if exist d:*.obj del d:*.obj
copy a:\hitech\tcrtdos.obj d:
if exist c:*.lib del c:*.lib
copy a:\hitech\libsc.lib c:
copy a:ctiny.bat c:c.bat
c:
```

Small.BAT:

```
echo off
echo Establishing SMALL model compiler
if exist d:*.obj del d:*.obj
copy a:\hitech\scrtdos.obj d:
if exist c:*.lib del c:*.lib
copy a:\hitech\libsc.lib c:
copy a:csmall.bat c:c.bat
c:
```

(If TINY was selected, this gets copied to C: as C.BAT...)

Ctiny.BAT:

```
echo off
echo *** HI-TECH C COMPILER - TINY MODEL ***
if exist *.h goto ramdisk
d:cpp -Uunix -DDOS -DHI_TECH_C -Di8086 -DSMALL_MODEL
-DSMALL_DATA - DSMALL_CODE -D_HOSTED
-IA:\HITECH\ %1.c $ctmp1.$$$
goto the_rest
:ramdisk
d:cpp -Uunix -DDOS -DHI_TECH_C -Di8086 -DSMALL_MODEL -
DSMALL_DATA - DSMALL_CODE -D_HOSTED
-IC:\ %1.c $ctmp1.$$$
:the_rest
d:p1 -QP,port $ctmp1.$$$ $ctmp2.$$$ $ctmp3.$$$
d:cg86 -M6 -M7 $ctmp2.$$$ $ctmp1.$$$
d:as86 -q -n -o%1.obj $ctmp1.$$$
del $ctmp1.$$$
del $ctmp2.$$$
if exist $ctmp3.$$$ del $ctmp3.$$$
if exist libsf.lib goto float
d:link -z -p_TEXT=100h,text,CODE,data,bss -lm -ol.obj d:tcrtdos.
obj %1.obj libsc.lib
goto end_link
:float
d:link -z -p_TEXT=100h,text,CODE,data,bss -lm -ol.obj d:tcrtdos.
obj %1.obj libsf.lib libsc.lib
:end_link
d:objtohex -b l.obj %1.com
del %1.obj
del l.obj
```

(If we intend to use floating point, we do this...)

Float.BAT:

```
echo off
copy a:\hitech\libsf.lib c:
echo Floating point library in position.
```

(If our next source file does not use floating point, we do this...)

Unfloat.BAT:

```
echo off
if exist c:libsf.lib del c:libsf.lib
echo Floating point library removed.
```

(when we are finished using Hi-Tech C, we do this to clear it from drive C:)

Remove.BAT

```
echo off
if exist c:*.h del c:*.h
if exist c:*.lib del c:*.lib
if exist c:c.bat del c:c.bat
if exist c:q.exe del c:q.exe
```

(... and drive C: is ready for the next application.)

Listing 1. *These are the .BAT files for the Hi-Tech C Ram disk, along with some comments about how they are used. I really don't understand half of what's in Tiny.bat; it's just the gobbledygook that came out of C.EXE, but it certainly works.*

Tide.exe comes out the other end. Using the same compiler directly from the floppy disk takes 1 minute 33 seconds, nearly three times as long – and it wastes lots of battery power.

Hi-Tech C

HI-TECH C STRONGLY resisted my attempts to cram it into a laptop's memory all at once, but I won in the end. Hi-Tech C is a locally written, professional grade, full-featured C development system, and it's a mighty piece of software. (If you are looking for such, it's available from Hi-Tech Software: phone (07) 300 5011 or (008) 777 935; fax (07) 300 5246.) I finally decided to use only enough functions in memory to do a basic compile, just to get a program working. Fully optimised compiling could come later, from a proper disk, once the program had the bugs squashed out of it.

Figure 1 shows that Hi-Tech C is organised in the two Ram disks much like Power C, although there are now six compiler sections in drive D:. I also managed to slip a small object file into D:. The C: drive again has a couple of library files and the editor, but there's lots more room to work with source and object files.

Hi-Tech C comes with a program called C.EXE, which takes your source file and leads it through all the stages of compilation. Trouble is, it badly wants that hard disk, and it expects to find everything it needs in the one big directory. The Ram disks, of course, are seen as two directories, and there's no way C.EXE will tolerate them. The source code for C.EXE comes with the Hi-Tech package, so it should be possible to hack it around to make it work with two disks, but I took a more direct path.

With C.EXE you can specify a 'verbose' option which makes it show on the screen every command it issues to the compiler files, with all their command tail options. I turned C.EXE loose on a small demonstration program, running it from the A: floppy, and simply redirected its verbose screen output into a file that became the basis of C.BAT. Yep, the screen output ran fine as a batch file to control the compiler, just like C.EXE did. All I had to do was edit C.BAT to reflect the disk drive names *I* wanted, instead of the names C.EXE wanted.

In fact C.BAT was made up in two versions, one to use the 'small' memory model, and the other for the 'tiny' memory model (to make .COM files instead of .EXE files). I didn't bother to allow for the larger models since the programs I write are always quite small. C.BAT was also set up to make it use a floating point library if it found it on drive C:.

When the disk containing Hi-Tech C boots up, its autoexec.bat copies its files into the C: and D: disks as shown in Figure 1. After this it asks you to specify the small or tiny memory model. These are in fact the names of two more .BAT files that copy the appropriate version as C.BAT onto drive C:. If you then type 'float' another .BAT file copies the floating point math library across to C:, and C.BAT uses it during compilation. If you want to work on another source file that doesn't use floating point, you can type 'unfloat' to invoke another .BAT file to remove the float-

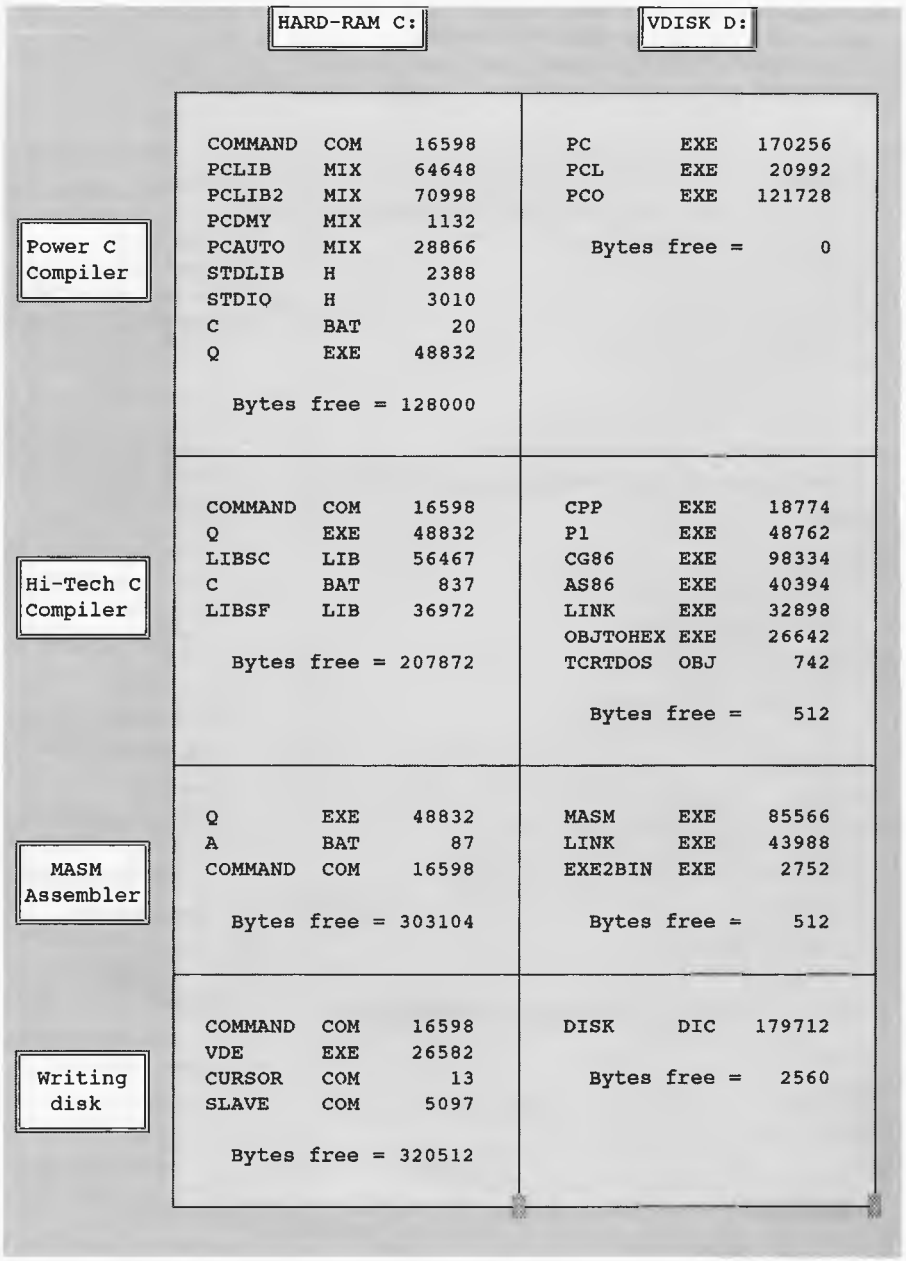


Figure 1. *This is what is in the example Ram disks discussed in the article. For using Power C, for example, I made a boot disk with the Power C compiler on it so that when I boot from this floppy, the machine contains two Ram disks, set up as shown here. This arrangement was arrived at by trial and error, juggling the size of drive D: against free memory until nothing bombed out.*

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veloped by GE engineers around 1955. UPS followed soon afterward and were in widespread use by the late 60's.

Static switches such as SCRs were an essential ingredient in most UPS. The switches – there were always at least two – create alternating current (AC) from a direct current (DC) source, usually a battery. Although SCRs are still frequently used in UPS above 10KVA in size, they have gradually been replaced in single-phase units by other types of power semiconductors; first by bipolar transistors and recently by MOSFET transistors. Now, GTOs (gate turnoff thyristors), a cousin of the SCR, have come on the scene.

Originally, UPS were very large, very noisy and very expensive devices designed to protect large mainframe computers. As computers got smaller and multiplied, UPS followed suit. The traditional approach to uninterruptible power used a double-conversion technique. Essentially, a large rectifier charger converted AC to DC, and a continuously running inverter converted the DC back to AC. If there was a blackout, the inverter drew its power from the batteries. Normally, a static transfer switch was added to protect against rectifier or inverter failure by switching the load directly to the incoming line. Of course, when the load was running directly from line power, it was not protected at all from power line aberrations.

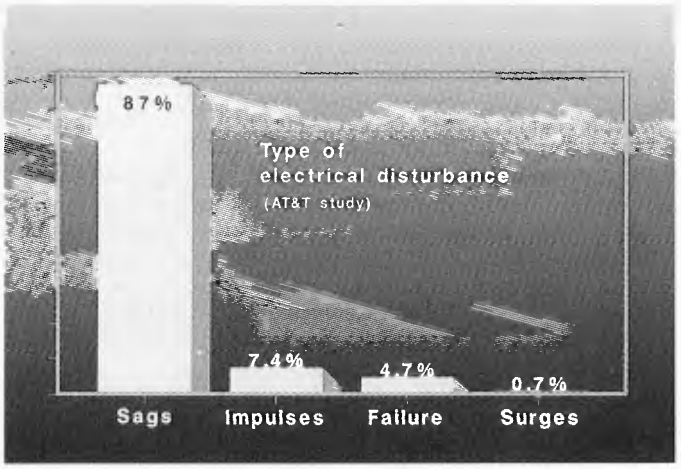

Figure 2. *An AT&T study found that power sags were very likely to occur after a lightning strike because the impulse suppression equipment in the distribution network momentarily cuts the power after the strike. (See Figure 3 for an illustration of the terms.)*

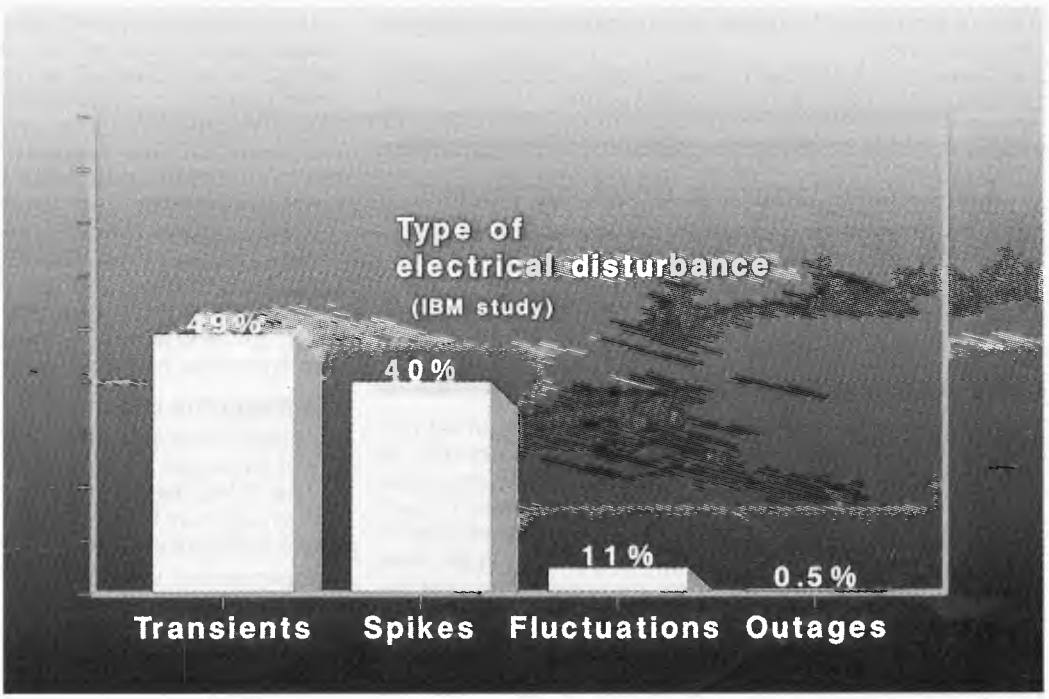

Figure 1. *The IBM study of power 'quality' found that, on average, computers can expect 128.3 'events' per month, typically divided as shown in the graph. (See Figure 3 for an illustration of the terms.)*

The double-conversion approach to UPS design is still used today; most of the improvements in the double-conversion approach have come about by increasing the efficiency and reducing the size and cost of the inverter section. First, step-wave inverters were introduced, which reduced the size of the inverter magnetics (transformer and/or inductor).

MOSFETs and bipolar transistors are now being used with high frequency pulse-width modulation (PWM) techniques that also reduce the size and weight of the inverter magnetics. Unfortunately, with both step-wave and the high frequency PWM approaches, the amount of electronic parts and overall circuit complexity are increased. The result is less reliability. Although double-conversion UPS designs can still be found today, they are increasingly being replaced by more advanced line-interactive designs.

The major problems of the double-conversion UPS are that they: do not provide continuous, on-line protection; have poor protection against electrical noise and lightning (the most common power problems); are inefficient and give off lots of heat; have poor reliability because of continuous heating and stress on

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the power semiconductors; can cause severe power line distortions on the incoming line, affecting the operation of unprotected loads, due to the UPS rectifier; and, have difficulty in handling high startup surges, shorts, and non-linear loads.

Problems with double-conversion UPS

THE STATIC BYPASS switch has sometimes been called the Achilles' heel of the double- conversion UPS. It is a necessary part of a double-conversion inverter/rectifier that has a mean-time between failure (MTBF) of around 10,000 hours or 1.33 years. It is necessary also because many inverters, especially the high frequency PWM type, cannot handle startup surges and shorts. Thus, the static switch is added so that the power line can be used to back up the double-conversion UPS.

Although the idea of the static transfer switch seems simple enough, it actually causes a series of problems, including: there is a break of from one-eighth to one-half cycle in power when the load is transferred from the inverter back to the line; the static switch is a very complicated device with its own reliability problems that can cause it to not work when needed; the static bypass snubber circuits provide a path around the UPS for electrical noise and lightning (this is even true when the static bypass is in the UPS mode); and, the static bypass connects the critical load to raw, unconditioned line power, which destroys the primary purpose of the UPS.

Without a doubt, the static bypass is the single, most significant design flaw of the double-conversion UPS.

This step causes a break in power during the switching time and hooks up the load directly to raw, unconditioned line power.

Just as serious of a problem, though, are UPS that do not provide an isolated neutral output. Without an isolated neutral, all spikes and noise coming down the input neutral line are passed right on to the critical load with no filtering whatsoever. It is as if the computer is connected to raw line power! This problem is common in smaller KVA UPS, but can exist in even larger sizes. The problem is made even worse for the unwary consumer because the lack of an isolated neutral is rarely disclosed in the manufacturers' product literature.

Without an isolated neutral, the protection provided by the UPS is, in some respects, not as good as a simple isolation transformer.

A typical double-conversion UPS in the 3.1 KVA to 18 KVA range is very inefficient. The electricity wasted is given off in heat, adding an additional burden to air conditioning. The cost of this poor efficiency in terms of wasted electricity is quite dramatic. Over a 10-year period, the cost of operating a double-conversion UPS may exceed its original purchase price!

Double-conversion UPS have inherent reliability problems. This is the result of a continuous running rectifier and inverter. The rectifier is continuously converting AC power into DC, and the inverter reconverts the DC into AC. Heat is the enemy of power semiconductors, and since both the rectifier and inverter are constantly on, they eventually wear out. That is why the MTBF of the inverter/rectifier section of the double-conversion UPS is typically around 10,000 hours (one year is about 8000 operating hours).

Besides heat, sudden load surges or shorts can also stress the inverter power semiconductors. This is even more of a problem with the newer, high frequency PWM designs. They have very little inherent protection from load-induced problems because the induced stress is immediately felt on the power semiconductor device (MOSFET or bipolar transistor).

The rectifier section for a double-conversion UPS is quite large. It must be sized big enough to overcome inverter efficiency losses and also recharge the battery. A rule of thumb is that the rectifier should be 1.5 times as large as the inverter. Because rectifiers have poor power factor characteristics and draw power in big gulps at the peak of the sine-wave, they can induce a significant amount of distortion on the incoming line. Also, the power semiconductors in the rectifier often create noise and spikes which are shoved back down the AC line. Because of the large size of the rectifier and poor power factor, the distortion, noise and spikes caused on the incoming line can be significant enough to affect the operation of loads not connected to the UPS.

The trend in double-conversion UPS design is to reduce the size and cost of the inverter section by using high frequency PWM techniques. This significantly reduces the size of the magnetic filtering components. While this does cut costs, the negative effect is that the inverter power semiconductors are no longer adequately isolated from the load. That, in turn, means if there is an overload or a substantial non-linear load (such as a switching power supply or a complete short), it immediately stresses the power semiconductors. In order to protect the power semiconductors, sensing circuitry is added to the double-conversion units so that the inverter can be immediately shut down and the load switched over to the main power lines.

This step causes a break in power during the switching time and hooks up the load directly to raw, unconditioned line power. This doesn't solve the problem, but rather pushes the problem onto the static switch and bypass line. In the attempt to protect the inverter, the overload may damage the static switch or trip the bypass line circuit breakers.

Justifying the cost

AN UNINTERRUPTIBLE power system can typically yield a high rate of return and fast payback – many UPS users report payback periods of less than six months. In some cases, however, tangible cost savings may be difficult to estimate. Users should consider the following points when making the UPS investment decision –

□ Importance of uninterrupted operation. The more a business relies on a computer system, the more important it is to keep that system running continuously. Point-of-sales systems, on-line invoicing or other real-time computer transactions are in particular need of protection. Order or information response times will be affected if the computer system is down – how will this affect customer relations?

□ Importance of data integrity. Data can be corrupted or lost by power disturbances. The danger is that this might happen without the users being aware of it – this is particularly significant with large databases. Most users don't realise how large and fragile their investment in 'data' is: How long would it take to re-key the data? How much work is involved in getting to the form in which it was finally stored? Is the original raw data still available (this is a point many overlook).

□ Maintenance and service costs. Power disturbances of almost every description can case increased maintenance and service costs. Users in problem power areas report that service costs can drop by one-half to one-third annually with a UPS.

□ Equipment cost. Small spikes and electrical noise have a cumulative effect on computers. Generally speaking, the larger the investment in computer equipment and peripherals, the more it should be protected.

□ Recovery costs. In addition to equipment replacement, other recovery 'costs' might include lost production because the computer system is down, idle staff and extra over-time.

□ Number of users affected. It is particularly important to keep networked and multi-user systems running full-time. The effects of computer malfunction can flow on to staff who are not ordinarily 'users' – stores picking staff, for example.

□ Organisational levels affected. The work practices of administrative and management staff are quite different from shop front and other 'line' workers – the importance of continuous computer operation needs to be assessed differently for each group.

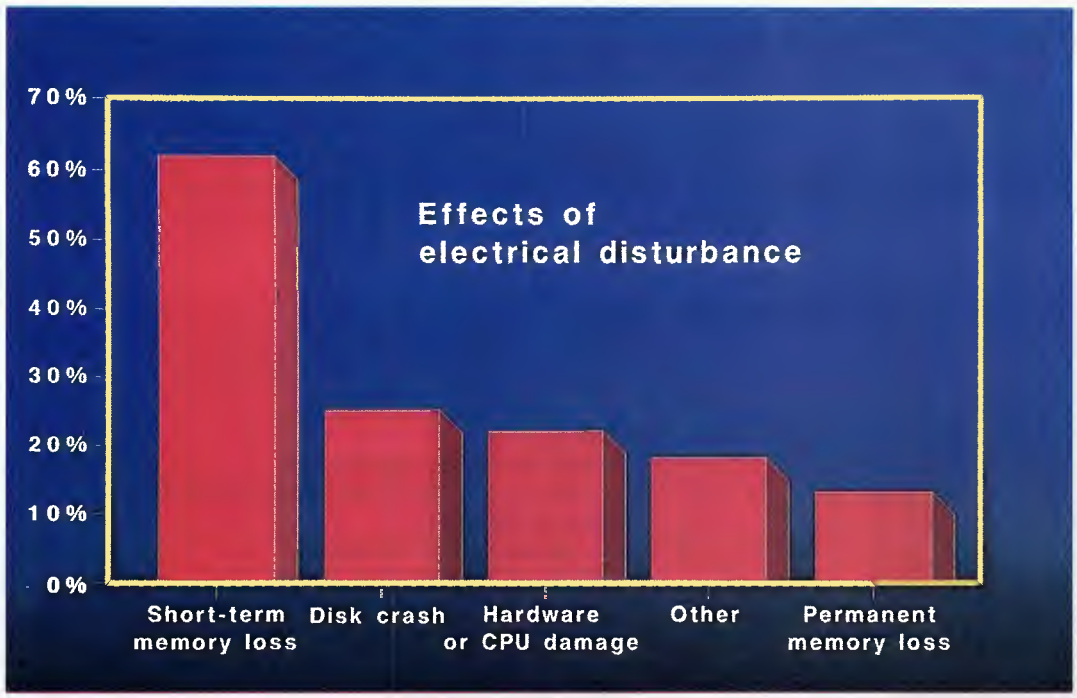

Figure 4. *It is often almost impossible to determine what damage has been caused to a computer system by power disturbances – for example, there are so many possible causes of a hard disk crash, that power 'events' are usually overlooked. Other damage can be even less obvious – hardware can have its life shortened, but not fail for months after the disturbance; or, a few records in a database can be corrupted and the cause not recognised.*

Single-track vs. dual-track UPS

IN ORDER TO reduce costs and size, some manufacturers of low-cost uninterruptible power supplies have removed the bypass capability of more expensive designs. Many of the slim line designs that fit under the computer terminal take this approach. Essentially, instead of having two possible power paths – either direct from line or through the inverter/battery – such designs rely entirely on the inverter/battery source. These are called single track UPS, which are inherently less reliable than dual track designs.

Best Power Technology's Ferrups range, for example, uses the dual-track approach so that line power is normally fed through the ferroresonant transformer to provide continuous, on-line, conditioned power. The inverter is used only during an outage. This has an advantage over both the single-track and double-conversion dual-track approach because the inverter is normally off, extending its life.

The latest generation of Ferrups are a combination of state-of-the-art design in three areas: ferroresonant transformer technology, power electronics, and computer-interactive microprocessor control and diagnostics.

At the heart of the system is the ferroresonant transformer. In the normal operating mode, the 'ferro' cleans up raw line power and filters out spikes, sags, surges, noise, lightning and brown-outs. Ferroresonant transformers are the most widely used computer-grade conditioners on the market and have a 40-year, time-proven history of reliability. Best's design incorporates numerous improvements over older-type ferroresonant transformers, making it very efficient; it is able to handle non-linear loads, provides fast dynamic response to line or load changes, and has an extremely high voltage spike attenuation on the order of 2000 to 1.

The ferroresonant transformer stores energy in its magnetic field and capacitor circuit. If line power fails, it will continue to provide power to the load for 8 to 16 milliseconds before a significant voltage drop occurs. This is often called the 'flywheel effect'.

The line-loss circuit detects a line power problem and brings up the inverter section to supply battery power to the ferroresonant transformer before the transformer output has decayed. Thus, uninterruptible power is achieved.

The ferroresonant technology addresses all the major flaws of a double-conversion UPS: It provides continuous, on-line power protection. At no time are the loads connected to raw line power or is there a break in power as with double-conversion UPS. The loads are always protected from lightning and electrical noise by the ferroresonant transformer. Since there is no static bypass, there is no path for lightning spikes and noise to travel to the loads.

The system is very efficient, typically around 90 per cent. Com-

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pared to double-conversion UPS, this system will pay for itself in reduced operating costs. The primary active component, the ferroresonant transformer, has an MTBF in excess of 200,000 hours.

In the Ferrups range, power semiconductors are only active when needed and are not continuously heated and stressed as in a double-conversion UPS. Also, the component count is half that of a double-conversion UPS. The ferroresonant transformer is specifically designed to handle switching power supplies and high startup surges without switching to raw line power. It also automatically limits current when shorted. The patented low frequency PWM inverter is isolated and protected from load-induced problems by the ferroresonant transformer.

There is no backlash problem with such a system because the large rectifier charger, which could cause spikes and distortion on the incoming line, is eliminated. In most cases, the power factor is less than the critical load, which reduces utility company surcharges.

Virtually all microcomputers, minicomputers and peripheral equipment use a switch-mode power supply. The ferroresonant transformer has been designed to operate with these; in fact, it actually improves switch-mode supply performance and reliability, which in turn improves the performance of the computer itself.

fective capacitance). This allows wave fronts with very fast rise times (and therefore high frequency content) to be applied to the system with extremely small coupling effects.

Computer power rating

AS MENTIONED ABOVE, computer equipment uses switch-mode power supplies (SMPS). SMPS are difficult loads because they are non-linear, have high crest factors (usually three to four) and exhibit a distortion power. Since dome UPS units are not designed specifically for switch-mode by-side comparison, it is necessary to use watts as a common denominator when comparing UPS units .

Sizing a UPS is easy-to-do. All that is required is a simple calculation of both volt amperes (VA) and watts needed for protected equipment.

- ☐ List all equipment to be protected by the UPS.
- ☐ Record the nominal voltage for each item identified.
- ☐ List the required amperes for each item. Most equipment manufacturers provide this information on the serial tag or in accompanying product literature.
- ☐ Calculate the VA, also referred to as 'apparent power' by multiplying nominal voltage times amperes.

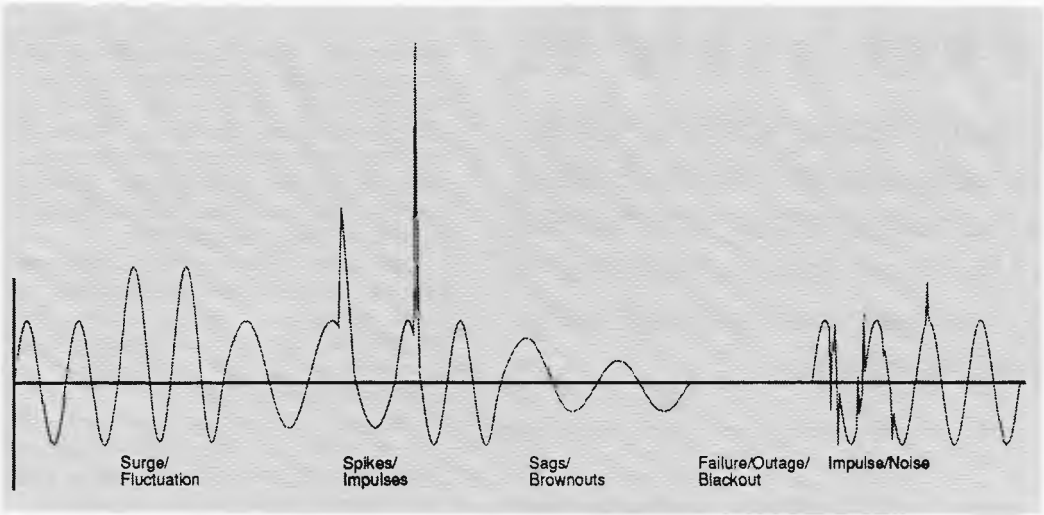


Figure 3. *One of the problems when discussing power quality is that there is no standard terminology – the most common problems and the terms generally used to describe them are shown here. Surges are also referred to as 'overvoltage' and 'high line' and sags as 'dips'. 'Transients' is used to describe any short term event, while 'fluctuations' refers to events over a longer period.*

The ferroresonant transformer has been around for a long time – about 50 years. Invented by Joseph Sola, a German-born engineer, the ferroresonant transformer has become the most widely used power conditioning device in the world. In fact, many major computer manufacturers, including DEC, NCR and UNISYS have, for many years, sold and recommended 'ferros' as power conditioning units for their computers.

The modern computer-grade ferroresonant transformer did not arrive overnight. Originally, ferros had certain problems that limited their application. These included low efficiency, slow response time, inability to handle non-linear loads and high audible noise. With new materials and advanced design techniques, these disadvantages have been completely eliminated.

The technology has achieved outstanding spike and noise attenuation – for example, the Ferrups UPS have 120 dB common mode and 60 dB transverse mode noise attenuation and 2000 to 1 voltage spike attenuation. The 'ferro' has a very low primary to secondary coupling capacitance (approximately 2 picoFarads ef-

- ☐ Calculate watts, also referred to as 'real power' by totaling the watt ratings for all protected equipment. If a watt rating is not provided by the manufacturer, then you can assume watts required are equal to the calculated VA requirements (new equipment) by adding a growth factor. Most UPS planners allow five per cent per year 'growth'.
- ☐ Finally, match your requirement for VA (apparent power) and watts (real power) to the appropriate system.

Correct sizing of a UPS requires only a simple calculation. A properly sized UPS can supply both the necessary VA and watt output.

Many users put off even thinking of uninterruptible power supplies because they are unfamiliar with the technology and what is involved in making a decision. As we've seen it's a fairly straightforward procedure. First, determine the size of the investment that needs protecting, then decide if a UPS is needed. Once you do, follow those simple steps above. You then have a good idea of what is needed and are ready to make a decision. ☐

COMPUTER BASED TRAINING WITH AUTHOR

The cost of training and retraining staff is a major investment, and many organisations are now realising that traditional methods can no longer cope with this ever increasing need. Tony McSherry and Liz McArthur of Microcraft describe a 'non-traditional' package their company has developed . . .

TRADITIONALLY, training works with groups. Usually this involves sending staff to courses run by 'experts' at remote locations or scheduling internal training sessions. The content of such courses may include lectures, 1 to 1 training and the use of media such as videos, workbooks and pen and paper tests.

Computer based training (CBT) has a number of advantages over traditional methods of training, including interactive courseware which integrates multiple media and learning strategies. Another plus is that the course can be conducted on PCs at a time and location which suits the organisation. Courseware may be delivered on floppy disks, used on networks or downloaded from mainframe computers – it can even be used interactively via modem.

CBT facilitates individualised learning, allowing instructors to target individual problems or learning difficulties. The instructor becomes much more effective by being freed to deal with individual problems or learning difficulties.

This method also provides a consistent standard of training. The use of an authoring system allows specific standards to be set and these can be applied to internally developed courses as well as those developed by external consultants.

Another advantage is that courseware is easily modified and updated to reflect different procedures or new technology. It is also important for the organisation to have access control of the source code of the courseware. Courseware developed in proprietary systems or programming languages can usually only be modified by its creators – and if this means outside consultants then even simple modifications become expensive.

A very practical plus for CBT is that it provides large savings on trainers' salaries, external consultants' fees, course materials, travel and accommodation costs, especially for organisations with many decentralised locations.

Scoring is automatic with CBT and progress through a course is based on student performance. Printed or audio/visual material can be used to update the product and procedure knowledge of large numbers of employees. However, ascertaining whether the material is understood is often extremely difficult. CBT enables the traditional 'teach and test' approach as well as mastery learning – where trainees only proceed to a new topic when they have demonstrated their understanding of the previous material. Scores may be recorded to disk to provide a permanent record of the trainee's performance and understanding.

Author

DEVELOPED IN 1984 by the Australian company Microcraft, Author has been continuously enhanced – version 9 is current and the product is now used by almost 400 organisations throughout Australia and North America. This version features a complete Course Management System and the Common User Access interface defined in IBM's SAA guideline.

Australians have embraced computer based training to a degree unparalleled by our counterparts in other countries. The following is a brief outline of some of the ways that Author CBT is being used to meet training needs here.

The National Australia Bank uses Author in its 1500 branches across the country to train staff in banking theory and procedures. Courseware is developed centrally in Melbourne and sent to branches on floppy disk. Other more sophisticated methods of delivery such as PC LANs and direct mainframe links are currently being investigated.

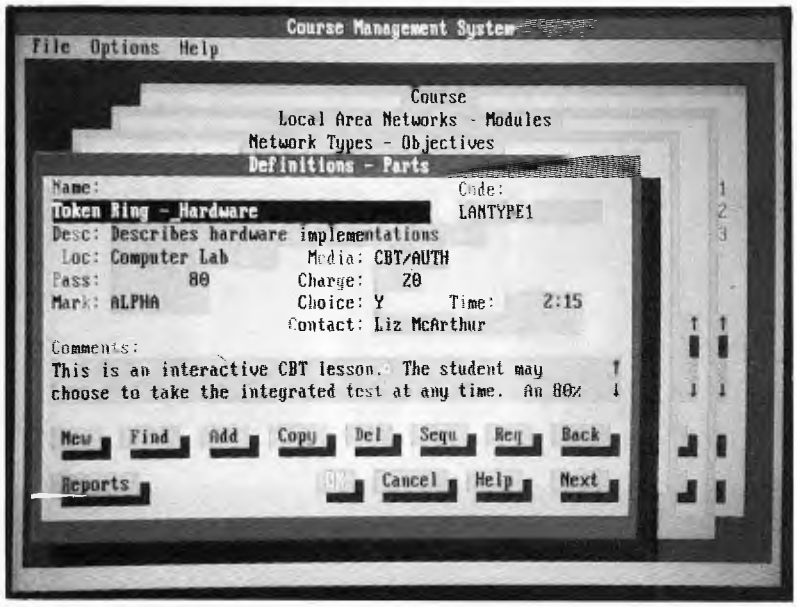
Australia Post has created computer based training for employees which deals with postal products and services, as well as more complex financial and accounting procedures. These training programs were recently nominated for the Government Technology Productivity Awards. On the same scale, the SEC (Victoria) has chosen Author as its computer training software and has developed instruction packages ranging from an introduction to computerised management information systems for managerial staff to emulation of a mainframe terminal to instruct operators.

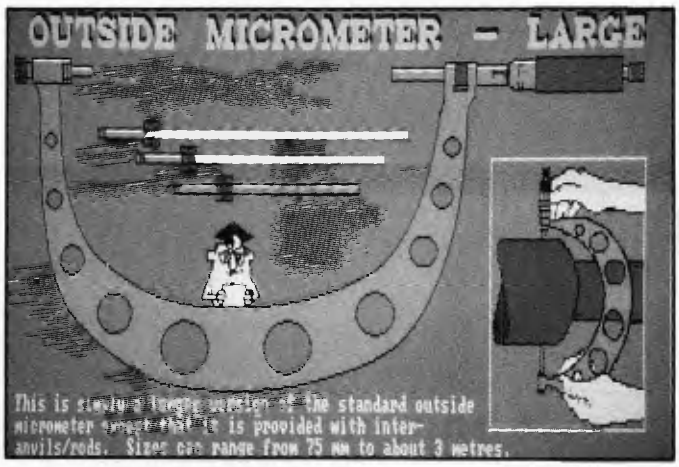
In the health field, a complete course

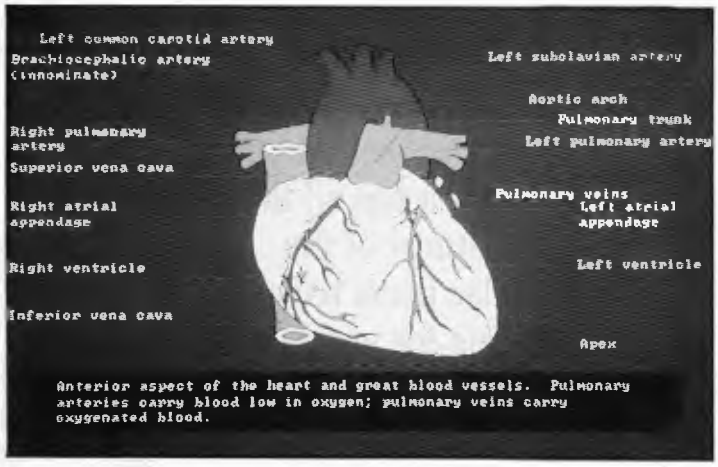
Learning to take full advantage of the features of a network can be time-consuming for both users and 'teachers' – CBT offers the advantage that the teacher only needs to develop the course and it can then be used by staff as their workload permits and new staff can be brought up to proficiency quickly.

***Below:** Microcraft's Author is being used on almost 400 sites in Australia and North America for training applications ranging from general industrial familiarity exercises to teaching self management of diabetes.*

***Below right:** One of the greatest advantages of computer based training is that it can closely monitor a student's learning and allow progression to further lessons only when a topic is mastered. For complex topics such as anatomy, this is almost impossible for a human teacher to do.*







on the self-management of diabetes called Diabetes Keyfax for health professionals and diabetics has been developed by Dr Matt Cohen from the Lions International Diabetes Centre. The University of Florida is using Author for CBT in the clinical area, pharmacokinetics and hospital management software. Microcraft itself has recently completed a comprehensive CBT course on AIDS education.

The Queensland University of Technology operates a networked CBT facility of 60 PCs running Author software that serves 75 per cent of the 11,000 students at the university. CBT has been developed in most areas of study, including accountancy, business, electrical engineering, chemistry, law, physics and nursing.

But CBT is not only being used in large organisations. Every weekday, students in TAFE Colleges in Victoria, Queensland and South Australia use computers to learn about welding, motor mechanics or partial fractions. Primary schools have used Author to create adventure games for students in areas of environmental studies and science as well as testing for reading skills and money management training.

In a recent and, to some, radical development, a pilot program has just started at the Methodist Ladies College in Melbourne where students are using Toshiba portable computers to take home Author lessons and deliver their results on disk to the teacher on the following day.

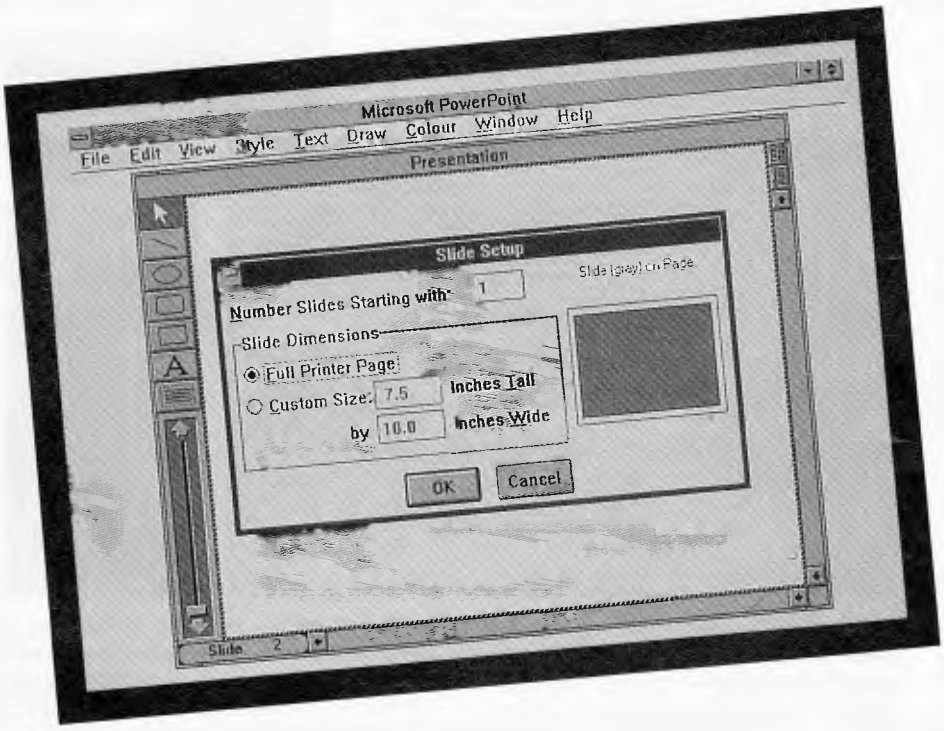
Even though Author was specifically designed for the subject expert, so that organisations could develop their courseware internally, personnel and time are often not available. To fill the need for externally developed courseware a number of companies are currently offering their services in the burgeoning CBT marketplace. Over 20 companies are currently involved in developing Author courseware. Microcraft publishes the Author Directory – a guide to Author users and lessons – to facilitate the exchange and sale of lessons between organisations.

Like the introduction of VCRs, fax machines and microwaves, the successful implementation of new technology only becomes apparent when it is regarded as an everyday tool. Over the last few years this has already occurred in a number of Australian educational institutions and some of our largest organisations. Certainly there is a long way to go, but we seem tc be ahead of the rest of the world.

Requirements of the Author system include: an IBM PC or compatible computer, 640K memory, 2 disk drives (hard disk recommended) and a colour graphics card and monitor (CGA, EGA or VGA).

If you would like to know more about computer based training in general or the Author package, contact Microcraft on (03) 836 9577; fax (03) 836 0363. □

PRESENTING POWERPOINT



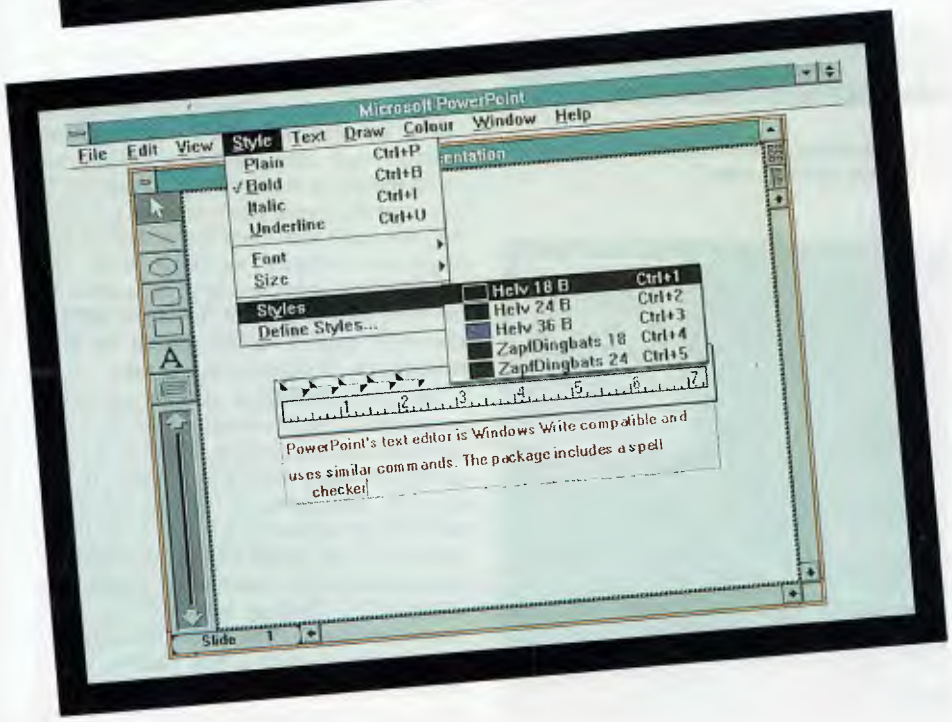
Roy Hill has discovered the Windows version of PowerPoint – it has all the power features of the version Mac users have been using for years.

FOR SEVERAL years I have used Microsoft's PowerPoint as an aid to making the numerous presentations that I am required to undertake in my normal job. This means that, up until now, I have been using PowerPoint on a Macintosh computer and I either had to do all of my presentation jobs at work (I have never been able to afford a Mac II at home), or take a Mac home with me. I recently upgraded my AT clone to a '386 clone and started running Windows 3.0.

My friends at Microsoft told me that PowerPoint was coming out in the PC version and kindly arranged for me to get an advanced copy. Let me say right at the start that it is almost impossible (except for screen resolution) to tell the PC version from the Mac version. I can now do all of my preparation at home and take the presentations in and run them on either a Mac or a PC. Microsoft supply an upgrade disk for Apple File Exchange, which allows PowerPoint presentations to be shuffled between the PC and the Mac. (I have even found a devious use for this routine, which I shall explain later.)

PowerPoint allows a presenter to vary presentations to include such features as on-screen slide shows, overhead transparencies, audience handouts and notes for the speaker on each slide/transparency. One can also produce 35mm slides by means of the Genigraphics format (.GNA). The main advantage of such a package is the ability of the presenter to vary the style of the presentation, to prevent the target audience from becoming inattentive. This is particularly effective when colour can be used for the on-screen presentation. The use of colour greatly enhances the interest factor for any presentation.

The installation process for PowerPoint is quite straightforward. One simply fires up Windows 3.0 (PowerPoint only runs under Windows), opens the File Manager under Main and then double-clicks on the INSTALL.EXE file on the appropriate floppy drive. PowerPoint installs itself and then creates the necessary Program Group icons under Windows Applications. Be warned though – it takes a fair amount of hard disk space. The version I installed (with the minimum number of fonts) takes about 10.5Mb, while the complete version (with all sizes of all fonts installed) takes up nearly 30Mb and several hours to install and create the fonts. (Now I know why people love PostScript.)



Running PowerPoint

ONCE POWERPOINT is installed, it can be run in the standard Windows manner. Either from the icon in the Windows Applications or by double-clicking on the POWERPOINT.EXE file in the POWERPOINT subdirectory. The PowerPoint screen will appear with the word 'Title' highlighted in the top centre of the page, with the default title 'Presentation'. The first task after firing up is to setup the slide and printer formats. This is done so that the presentation boundaries are defined prior to creating slides. The boundaries can be changed at a later stage, but some rearrangement of the material may be necessary.

To set the boundaries, click on the Slide Setup item on the File menu and after selecting all the appropriate items, click on Printer Setup under the same menu to select the target printer. Incidentally, I have both Microsoft Word (I'm doing this article in MS Word for Windows) and PowerPoint running side-by-side; that way I can check instantly if I'm unsure of a particular syntax for a command.

After setting the scene, assembling of the presentation can begin. Each slide is equivalent to one screen or transparency of presented material. Correct presentation techniques dictate that the presentation format should be laid out in advance of creating it. One should never sit at the computer and attempt to create and layout a presentation at the same time.

The first task is to lay out the slide master. This is done from the View menu by highlighting the Slide Master option. The slide master contains the information that will be common to all of the slides in the presentation, such as the company logo in one of the corners or the background colour (for an on-screen presentation) and any fancy borders required.

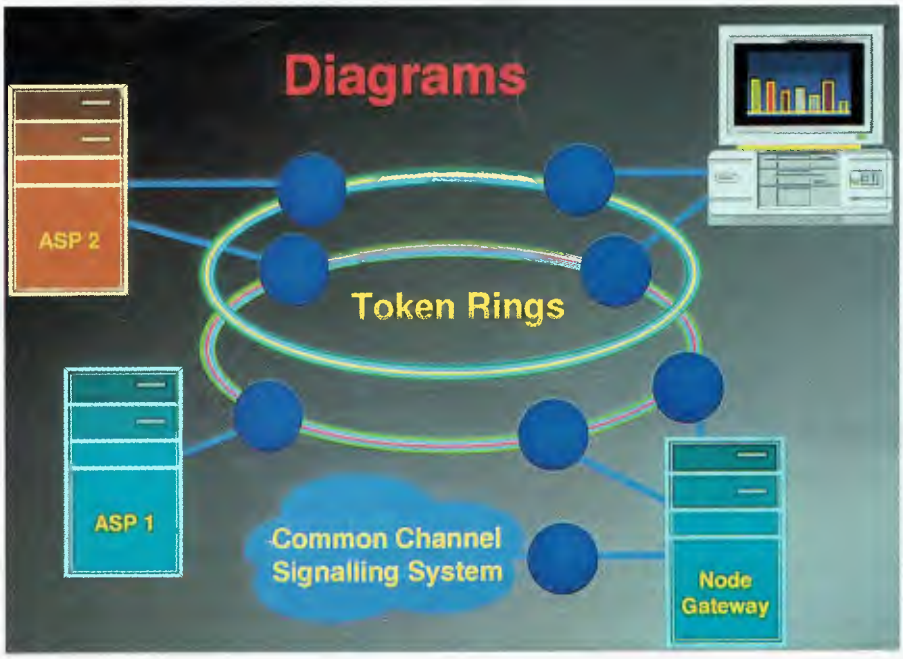
This doesn't mean that the master is obligatory on every slide, it just provides an easy way for a standard format to be continued throughout the presentation. The colour for the master (or for any other slide) is chosen from the Color menu. If the desired colour for a slide is different from the master, Master must first be omitted from the Edit menu and then a new colour scheme chosen from the Color menu.

Now we can go ahead and start creating the presentation. Liberal use of graphics (using such programs as CorelDraw) to add variety to the presentation is a good idea. As well as straight colours, there are many options for shading the background and choosing from a selection of recommended accent colours to go with a particular set of foreground and background colours.

This is where my devious nature has been at its most creative. I have all these marvelous Macintosh graphics (Art Discs) that were created under MacPaint. I figured there had to be some way of getting them across to the PC, and PowerPoint proved to be the way. The version supplied with the Mac has an incredible accessory package called SmartScrap, which makes the Mac's ScrapBook look amateurish. I fired up MacPaint, copied the graphics I wanted into SmartScrap, pasted them into a dummy presentation in PowerPoint, translated to the PC using the updated Apple File Exchange and – *voila!*

As you might expect from Microsoft, the implementation of the user interface is consistent with Windows itself, making the package quite easy to master. Most images can be captured with PrtSc and pasted into the slide with Shift-Ins.

The most effective presentations – those which are understood and remembered by the audience – are those which use simple ideas to express more complex ones.



PowerPoint's import abilities make using graphics in a presentation straightforward. The package also provides a wide range of shaded and coloured backgrounds.

All of the graphics are now available on the PC. I even scanned in the corporate logo on the Mac (using AppleScan), SmartScrapped it to PowerPoint and then used it to create a slide master. Now all I want is a version of SmartScrap for the PC – that would make life even more blissful.

Having completed the first slide, New Slide is highlighted on the Edit Menu and work commences on the next one. This process is repeated for as many slides as are necessary.

Creating text

THERE ARE TWO ways of creating text. The first (and simplest) method is to click on the A symbol on the left-hand side of the screen and then click on the position where the text is required to be inserted. The font and its size are selected from the Style Menu. Once the text has been typed, it can be fine positioned by clicking on the arrow symbol at the top left of the screen and then selecting the text box and moving it to wherever required. There is an even niftier way of handling graphics. Any graphic image can be re-sized (so that it fits exactly where required) by dragging on one of its corners.

This either expands or shrinks the graphic, depending on the direction of dragging. By holding down the Shift key whilst dragging, the graphic grows or shrinks, whilst maintaining its vertical to horizontal proportions. As with text, the graphic may also be finely positioned using the arrow to move the graphic to its final resting place. Can't see the position well enough? There are four different enlargement settings available from the View Menu – anywhere from full size to 33 per cent (of full size) at the latter setting, the whole page is visible, so that the relationship of all objects can be seen.

The second method of entering text is to use the Word Processing Tool. This one is located at the bottom of the tool icons on the left-hand side of the screen. To use this tool, first select it (by highlighting it with the arrow pointer) and then point to an area on the screen where the text is desired. The cursor changes its shape to a 'cross-hair'. Clicking and holding down the left mouse button, whilst dragging the cursor, will produce a box outline, which grows in size as the cursor is moved. When the mouse button is released, the box will change to a dotted outline, with a text cursor blinking in the top left-hand corner of the box. Text can then be typed in the selected font and size. Why use this process to create text when the A tool is much simpler?

The answer is fairly simple. Using the word processor allows the creation of bullet charts (using hanging indents), by showing a text ruler (Show Text Ruler from the Text Menu) and a spelling checker is also available to check the spelling of your presentation. Neither of these two features are available under the 'A' text entry tool. In addition, don't worry if the text appears not to fit inside the box – the box

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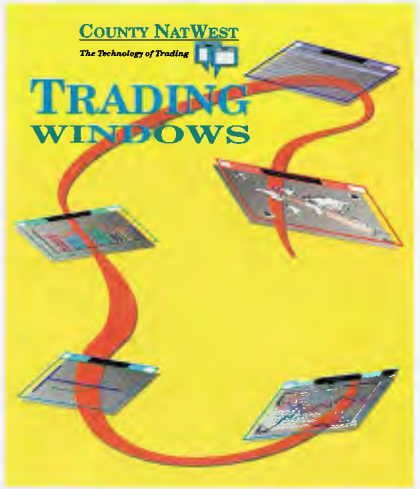

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will expand to fit the text.

Text can be framed (using any of the line styles from the Draw Menu), shadowed, or filled (patterns for filling areas are available under the Draw Menu as well).

If you find that you are continually using several combinations of font, size and format (bold, italic and so on), you can define your own style and add it to the Style Menu. This provides a rapid way of selecting a particular favourite, rather than going through a tedious set of menu operations.

As progression is made through the preparation of the presentation, it may be useful to review the individual slides. This can be done most conveniently by selecting the Slide View (the icon at the top of the right-hand scroll bar), which displays a reduced view of the presentation, all on the one screen. In this view a new slide can be added or inserted, an existing slide deleted, or a slide moved from one position to another. An alternative method of viewing is to use the Title Sorter. The same editing features are available here, as are in the Slide Sorter, but to use the Title Sorter effectively, every slide must have a different title. It might seem as though this is a problem (we might not want text on a particular slide), but there is an easy way around this.

There are two parts to any slide, the front and the back. Objects at the back are hidden behind objects at the front. The slide title is always at the back, so moving it behind a suitable graphic will effectively render it invisible. Moving objects between the front and back is the method that ensures a logo, for example, is always on top of a decorative border.

The Snap to Grid option, combined with the Show Guides option (both on the Draw Menu), allows text and graphics to be aligned both horizontally and vertically. This is a really handy feature for ensuring that groups of pictures and/or text are lined up correctly.

Lines, circles (and ellipses), rectangles (and rounded rectangles), squares (and rounded squares), are the other tools available on the left-hand side of the screen. Each of these may be drawn in several different forms, selected by using the Line Style option from the Draw Menu. By selecting Lines from the Colour menu, the colour of the lines can be chosen. Lines can also be positioned, shortened and lengthened by selecting them and then using the pointer as described above.

I mentioned above that speaking notes can be prepared as well as the actual presentation. This can be done by selecting Notes from the View Menu. When the notes are printed (an option of the Print command from the File Menu), a miniature of the slide is produced (the exact size and number per page depends on the printer), with the appropriate notes alongside. Handouts for the group receiving the presentation can also be produced at either two, three or six per page.

Some very interesting (but quite involved in terms of preparation time) effects can be produced in PowerPoint, using various background colours and shading effects. The final result is often well worth the effort. Incidentally, 35mm slides can also be produced by making use of the Genigraphics format included with PowerPoint. The presentation saved in this format can be sent to the Australian agent for Genigraphics, Business Graphics, either on disk or by modem.

Don't worry if the text appears not to fit inside the box – the box will expand to fit the text.

Running the presentation

THE PRESENTATION can be produced in three formats –

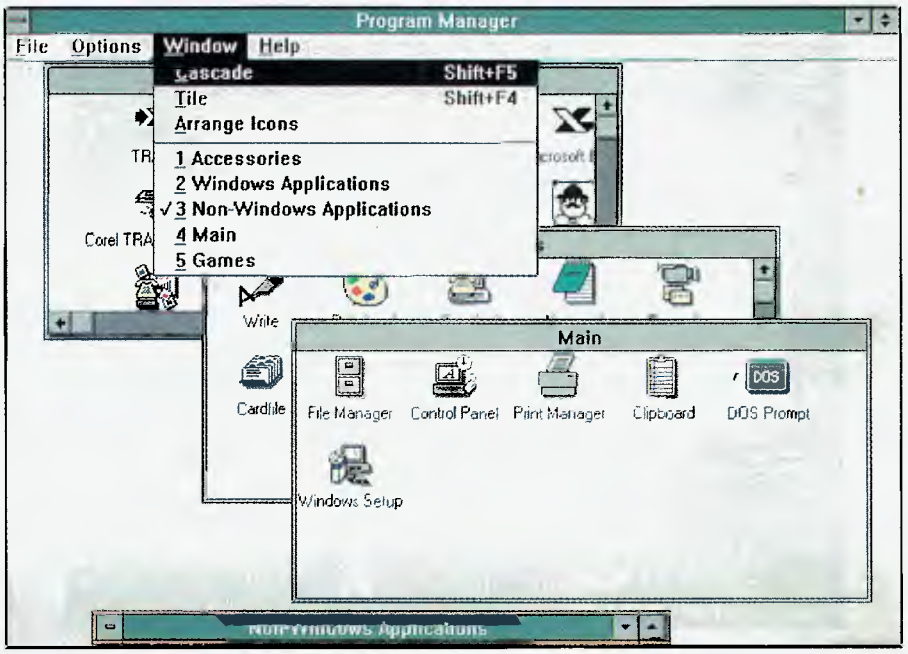
PowerPoint comes with a useful selection of clipart, but its flexibility means that clipart from almost any other package can be used.

and configured for standard mode. When I tried to run it on my new '386, it still ran in standard mode. Oh well – re-install!

Halfway through the installation process, Windows actually fires itself up and continues the rest of the installation under Windows. I must say, it looks really good on my VGA monitor – just as good as the Mac.

Windows will also ask if you want it to modify your autoexec.bat and config.sys files. I said go ahead (I'm usually very wary of programs that want to tamper with my literary masterpieces) and it made all the necessary modifications. It even found the lines in the autoexec.bat that control my mouse drivers and replaced them with appropriate Windows drivers.

A large number of users don't know a RAM from a ewe.



The Program Manager is the central component of Windows' GUI. Applications are divided up into groups, according to their function.

Just prior to the completion of the installation process, Windows asks 'Do you want Windows to look through your disk for Windows applications?' At the time, I thought it a good idea to answer Yes to this question, but on later thought, it's probably better to say No. If there are already applications like Word or Excel residing on the hard disk, Windows will find them, but they won't run properly in '386 Enhanced Mode. You'll have to run them in Real Mode. Likewise, one can't install Windows specific software until *after* Windows has been installed, so it's probably better to wait and run the setup program after all the Windows Applications have been installed.

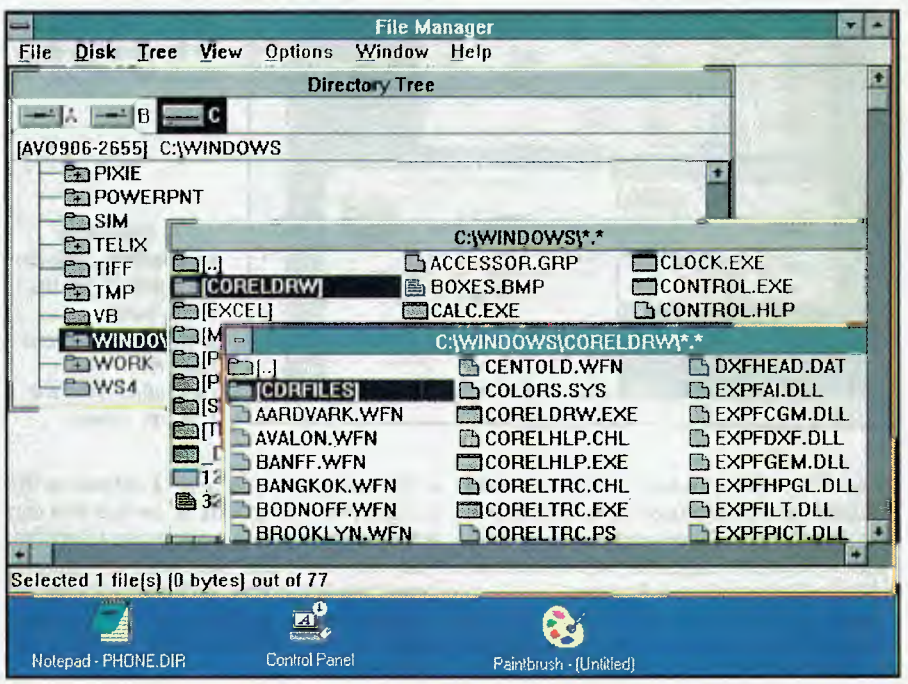
Opening Windows

YOU CAN start windows from the Dos prompt, simply by typing 'win'<CR>, or you can do as I have done and put it in the autoexec.bat file, using the 'ask' command. You can also force Windows to run in a particular mode (providing your processor is capable of handling that mode), by typing WIN /*x* where *x* is 'r' (for Real Mode), 's' (for Standard Mode), or '3' (for '386 Enhanced Mode).

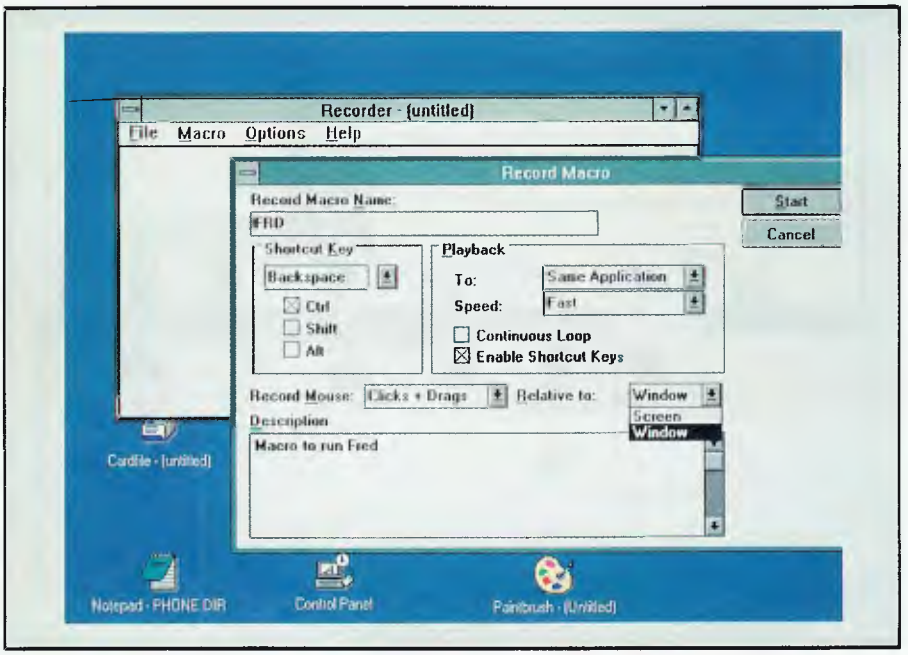
These switches may be necessary for running programs written for previous Windows versions, or for running a '386 in Enhanced Mode with less than 2Mb of RAM.

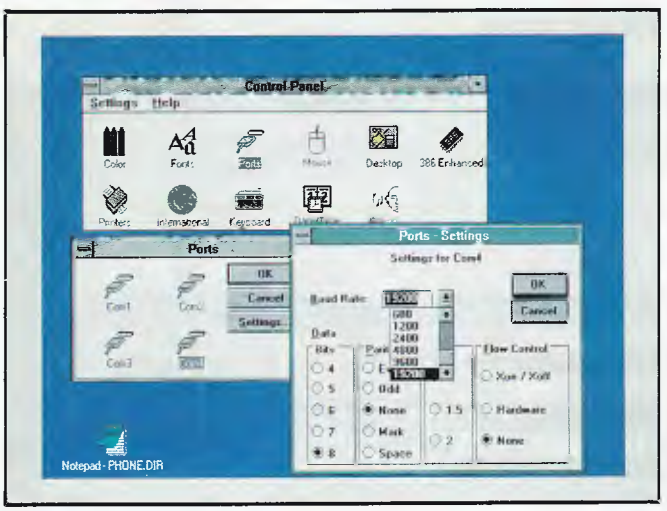
An opening screen will briefly appear and will be replaced with the Program Manager screen. The icons located at the bottom of the screen will depend on the options selected during the installation procedure. However, there will be at least three of these –

Accessories are useful applications such as a notepad, calculator and clock.



Windows' File Manager replaces the old MS-Dos Executive screen of older Windows versions, but is more versatile, allowing several directories to be displayed at once.





Above: The Macro Recorder allows keystrokes and mouse movements to be recorded, and replayed later on.

Left: Hardware parameters, such as the settings for the serial ports, printers, and screen colours, are all controlled from the Control Panel.

Main is the control engine of Windows. It contains the File Manager, the Print Manager, the Control Panel and so on.

Games – two are supplied with Windows, Solitaire (Patience) and Reversi.

These icons are called 'Group icons', as they contain applications that are part of the same group. If you allowed Windows to search the hard drive/s for applications to install, you may also see ***Windows Applications*** and ***Non-Windows Applications***.

If you have installed Toolbook, a icon for this will also appear in the Window.

Let us examine the Program Manager in a little more detail.

The box in the top left hand corner that looks like a drawer of a filing cabinet is the Control Menu Box. This is the box you can activate when you want to close Windows. You can also exit Windows by pulling down the File menu and highlighting the 'Exit Windows...'command. From the keyboard, typing Alt-F4 will also produce the same result.

Two interesting options available under the Window menu are the Cascade and Tile commands. The former places the opened windows one on top of the other, but with some overlap (which can be defined in the Control Panel), so that all opened windows can be accessed. The latter command arranges the opened windows side-by-side around the screen, so that a portion of each window is easily visible.

The Main Program Group

THIS GROUP contains –

File Manager provides access to files and Dos commands such as copy, delete and rename.

Control Panel has the utilities which allow the user to modify the appearance and operation of Windows.

The Print Manager allows the user to examine and modify the print queue – no more waiting for an application to finish printing before continuing work.

The Clipboard contains text and/or graphics that have been cut or copied from an application.

The Dos Prompt allows the user to execute Dos commands which aren't otherwise available; for example, the verify command. To return to Windows from the Dos prompt, one simply types 'exit'< CR>.

Windows Setup allows the user to select applications to become part of either Windows or Non-Windows Application Groups.

The Accessories Group

THIS GROUP contains –

Write is a wordprocessor that provides most of the necessary features.

PaintBrush, the old Microsoft program, which has been updated to take advantage of better displays with more colours.

Terminal is a communications program that provides for fairly basic (primitive?) file transfer. Only Xmodem, Kermit and plain ASCII (text) protocols are provided for. Knowing that Windows can program in the background gave me a chance to download some BBS files in background mode (using Telix 3.12). I was then able to 'de-ice' some files I had just downloaded, whilst still receiving others. This has got to be as close to heaven as one can get!

Calculator provides both an arithmetic and scientific calculator.

Calendar is an appointment and time management system.

Cardfile is a rolodex type cardfile that can manipulate data.

Notepad is a simple program for recording brief notes.

Recorder is a macro recorder to record frequently used key stroke combinations.

PIF Editor allows the user to create and modify PIF (Program Information Files) that contain information on how Windows starts and runs Non-Windows applications.

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The Control Panel

THE CONTROL Panel is designed to assist the user in tailoring the appearance of Windows to the user. With the Control Panel, you can select –

Colours to modify the colours of the windows, their title bars, the text, the borders and so on. I have selected the 'pastel' shades, with some minor modifications (using the 'Define Custom Colours' option).

Fonts to add or remove system fonts as required. I expect a fair number of third party fonts will become available under Windows.

Ports to set up the serial ports for all of their parameters.

Mouse to control the clicking rate, the speed of movement of the mouse pointer and swapping the position of the mouse buttons (for southpaws).

Desktop to select the patterns to be used for the desktop (either tiled over the screen or centred), or create your own using the PaintBrush program. Also, one can set up an invisible 'magnetic' grid, which assists with the alignment of icons.

Network controls the connection to a network (only available if you are actually logged on to a network). The options available under this icon depend on the type of network being used.

Printers to add, remove or select printers.

International is a useful routine that allows the user to have date and time displays according to their country. It also selects the correct currency format for that country.

Keyboard to adjust the keyboard repeat (typematic) rate.

Date/Time to change the system date and time.

Sound – turn the speaker ('beep') on or off.

'386 is only available when running in '386 Enhanced Mode and allows the user to set the foreground/background operating parameters and the use of RAM/swap files.

Windows applications

ONE OF THE first tasks I undertook after installing Windows was to put Word for Windows and Excel for Windows on the hard disk. I then fired up both of these packages (side-by-side) and loaded an Excel spreadsheet . I selected a portion of it, copied it to the Scrapbook, selected Word and then paste. . .linked the spreadsheet data to the Word document (also selecting the auto-update box). I then went back to the spreadsheet and changed one of the figures and sat back and watched while Windows automatically updated the appropriate figure in the Word document.

I also opened Word and WordStar (V6.0) – a Non-Windows Application – side-by-side, cut some text from the WordStar document and pasted it into the Word document. Of course, Word couldn't handle WordStar's weird formatting and put line feeds at the end of each line. At least, the high bits weren't set and the text was quite readable. I have written a little macro to go through and strip out the line feeds. It's only in '386 Mode that one has the choice of running Non-Windows Applications in either a window or full-screen mode.

This also affects how the mouse operates – in full-screen mode, the mouse operates with the application (my BMC mouse runs a WordStar pop-up menu) and typical mouse operations can be carried out on the data. In Windows mode, the mouse belongs to Windows, rather than the application. As a real test, I ran wschange (WordStar's setup utility) and made a new copy of WordStar called ws1-exe. I then fired up Windows, booted the new version of WordStar, put it into a window and then fired up the version of WordStar that Windows knew about – *it worked* – two copies of WordStar running side-by-side. However, copying text from one to the other was painfully slow. Nonetheless, it worked – I think that this was quite a fair test for Windows.

It even found the lines in the autoexec.bat that control my mouse drivers and replaced them with appropriate Windows drivers.

Virtual memory

WINDOWS MAKES use of virtual memory (swap-to-disk) techniques to keep multiple applications running. This feature is only available when running in '386 Enhanced Mode. If you get low on RAM whilst applications are running, Windows will 'swap' programs to the hard disk using a temporary swap file. It was very interesting the first time that I fired up Windows in '386 Enhanced Mode – I opened the Help Menu in Program Manager and pulled down the option that is titled 'About Program Manager..' It told me I had 19Mb of *free memory*. Wow! I have since created a permanent swap file on my drive D. My drive D is faster than the C drive and a permanent swap file runs more quickly than a temporary one.

The only disadvantage is that a permanent swap file is just that – it stays on the disk even when Windows isn't running. At the moment, I have lots of free disk space, but it's nice to know that I can modify the size of the permanent swap file (or even remove it completely) at any time. The frustrated hacker (and I use that in the true sense of the word, not one of those computerised graffiti-vandals) can modify the operating parameters of just about everything that Windows does, which means that Windows can become a truly personal user environment.

Unlike the Mac, Windows can't (at the moment) know what document or file was opened under which application (in the Mac, one simply has to double-click on a file and the application that created it is automatically fired up). However, one can create 'associations' between files and applications. For example, .doc files can be associated with MS-Word, .txt files with WordStar, .wks files with Lotus 1-2-3, .xls files with Excel, .fw3 files with Framework III and so on. Double-clicking on the file will start the 'associated' application and automatically open the selected file.

Toolbook

AS I MENTIONED earlier, Windows V3.0 comes with a run-time package of Asymetrix' Toolbook and Daybook, which is a time management facility that allows users to enter appointments on specific dates at specific times and to store names, addresses, fax numbers and so on. Daybook also provides a 'To-Do List' and day/week/month views. The daybook is an example of the type of application that can be produced using Toolbook. Toolbook appears to be an IBM of something like a cross between a colour Hypercard, Supercard and paint program, capable of providing a multimedia production. That's going to be my next toy.

Microsoft have a real winner with Windows 3.0. I can't wait for the next version, which will rely on users' feedback to improve the user interface. I am compiling my own wish list which I will add to and refine as I continue to experiment with this marvellous program. □

DON'T PROSECUTE: EDUCATE!

The US Business Software Alliance's Neal Goldman spoke with Paul Zucker in Sydney about the Alliance's international goals . . .

NEAL GOLDMAN, as Deputy Counsel for Lotus Development Corporation is responsible for all Lotus' legal affairs outside the United States. In addition, he's a member of the US Business Software Alliance, or BSA (allied to our local BSAA). Within Lotus, he is in charge of the company's anti-piracy program. We spoke to Goldman while he was in Australia 'doing the rounds' of countries under his wing, for both BSA and Lotus.

Where is the greatest software-piracy problem, geographically?

It's still in those countries that don't have reciprocal copyright laws, particularly Thailand and China. To a lesser extent South America, the Middle East and even Spain and Italy. In Thailand and China people are openly pirating and selling both the software and manuals, though there aren't all that many PCs in China . . . yet! In the other countries you have to search a bit harder, but it's usually there under the counter.

And what sort of pirating users are the greatest concern to you?

Without a doubt it's the large corporate users. While we're aware of a great deal of piracy at the end-user level, we feel that our main target for getting the message across is in big business and government. Many of these companies almost have a corporate policy of piracy and we have to correct that.

How are you going about that – is it talk or punishment?

Both. We feel that neither on its own is sufficient. If all we do is talk then we've got nothing to back-up our stand. If all we do is sue, then we get people against us. Our aim is to make everyone understand that software is copyright and it's illegal to copy it. We take offenders to court to show that we're serious. Overall, we're about educating the user.

Is piracy ever justified?

No, but we can see areas where our members have to do more to make it totally unnecessary. For instance, where a popular product isn't available in a local language, there's a greater temptation to illegally modify the program and sell pirate copies. Likewise, users who want to make a second copy for home use should contact the manufacturer to determine if this is permissible. The BSA doesn't have a policy on this sort of thing so there isn't a standard way that the industry treats these requests. We're in the business of educating, not laying-down laws for the industry to follow.

Our aim is to make everyone understand that software is copyright and it's illegal to copy it. We take offenders to court to show that we're serious. Overall, we're about educating the user.

What about the huge industry in computer books that are essentially user manuals for people who have pirate copies of software? Surely you don't condone them?

We do. Most of those books are not only condoned, but are produced with the assistance of our members. After all, it's in our interest for users to have access to other ways to learn about our products. Occasionally we've had to prosecute people for substantially copying our manuals to make a 'how to do it' book, but that's rare.

How are you educating users?

Advertising campaigns, especially in the business press so that corporate executives know what the situation is. Contact with the press like this – we're finding almost 100 per cent support from the press since nearly all software had those disruptive copy protection systems removed.

I still have a '286 PC on my desk. Am I forced to buy a new '386 just because it's better?

What are the most effective ways of using the product itself to prevent piracy, since copy-protection has gone?

We see the guilt screen as one of the best methods. That's where users are reminded who the software is registered to every time they boot it. The screen says something like 'This software is registered to Bloggs Engineering'. More and more of our members are moving that way. We don't see much future in dongles or other hardware devices that are either so efficient they get in the way of the user, or so simple that people disable them.

We've seen a number of companies offering amnesties or ways for owners of pirate software to 'come into the fold'. What's your opinion of that?

I don't like it, and neither do the majority of our members. It falls-down because owners of legitimate copies naturally get annoyed when they see pirates being given free, or low-cost legitimate versions.

What about users who justify their piracy by saying that you shouldn't charge for upgrades?

I still have a '286 PC on my desk. Am I forced to buy a new '386 just because it's better? Just the same, software developers don't make you buy their new products but offer you the chance to upgrade for a price if you want to.

What about when the upgrade is made necessary by bugs in the software?

No comment.

Is there a target that you're working to, like a 20 per cent reduction in piracy over the next year?

No, our aim is more qualitative than quantitative. We want to change the behaviour patterns, and stop people from automatically assuming that since software can physically be copied, it can legally be copied too. Another reason for not setting goals is that our members wouldn't want to reveal their sales figures anyway. In places like Italy where we've asked all our members, they've all reported conclusive results after the advertising campaigns. □

Solved a problem lately?

As Australia's own PC magazine, we pride ourselves on our local content. In maintaining that tradition, *Your Computer* would like to hear about your experiences with personal computers and pass them along to our readers. We are currently seeking casual and regular contributions covering the use of PCs in small businesses. *(Note: we are not seeking standalone product reviews at this time.)* Articles should be 1200 to 1500 words long and take the form: problem, investigated solutions, implemented solution, and give the reasons behind your decision. Our style is quite informal – check out the articles in this issue.

Please submit your article as an ASCII file on disk (we can read all common formats), accompanied by hard copy. All care will be taken with submitted material, but we cannot take responsibility for the safety or return of submissions. Don't forget to include your address, a daytime fax or phone number, and contact phone numbers for an Australia reseller of any products mentioned.

If you have any technical advice or hints on using hardware or software that would be of interest to others, drop Mark Cheeseman a line care of 'Tech Tips' – it could be worth $100!

your computer

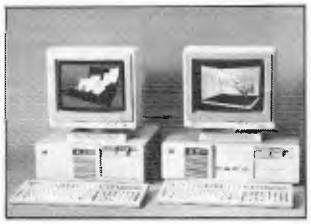
MAKING YOUR MICRO WORK

If your article is being considered for publication, we will contact you regarding payment and arranging photographs or other suitable illustrations. Send your material to: Jake Kennedy, *Your Computer*, PO Box 199, Alexandria 2015 NSW.

RELEASE UPDATES

Desktop Machines

AGI Update



Multisource Australia
Phn: (02) 899 1899;
Fax: (02) 680 3103

20MHz 80386SX Model 3000B
Std. RAM: 2Mb
Max. onboard RAM: 8Mb
Operating system: Dos
Hard drive: Optional
Bus: ISA
Floppy drive: 1 x 1.2Mb 5.25-inch
Serial ports: 1
Parallel ports: 1
Front panel reset/power switches: Yes/no
Half-height devices: 1 internal; 3 external access
Expansion slots: Two 8-bit, six 16-bit (all free)
Power supply: 200 watts
Display: Optional
Keyboard: 101 keys
Other: ST506 hard/floppy drive controller
Warranty: 12-months
Price (rrp): $2310; Model 3000B-01 large footprint can take 5 half-height devices, all with external access

Olivetti Update

Triumph-Adler Olivetti
Phn: (02) 748 2600;
Fax: (02) 748 3390

16MHz 80386SX PCS386SX
Std. RAM: 1Mb
Max. onboard RAM: 4Mb
Operating system: Dos
Hard drive: 40Mb
Bus: ISA
Floppy drive: 1 x 1.44Mb 3.5-inch
Serial ports: 1
Parallel ports: 1

Front panel reset/power switches: Yes/no
Half-height devices: 1 internal; 3 external access
Expansion slots: One 8-bit, two (all free)
Power supply: 200 watts
Display: 14-inch VGA monochrome
Keyboard: 101 keys
Other: Tutorial included
Warranty: 12-months
Price (rrp): $3950

Triumph-Adler Olivetti
Phn: (02) 748 2600;
Fax: (02) 748 3390

25MHz 80386 M386/25
Std. RAM: 2Mb
Max. onboard RAM: 4Mb
Operating system: Dos
Hard drive: 16ms 100Mb
Bus: ISA
Floppy drive: 1 x 1.44Mb 3.5-inch
Serial ports: 1
Parallel ports: 1
Front panel reset/power switches: Yes/no
Half-height devices: 2 internal; 3 external access
Expansion slots: One 8-bit, two 16-bit (all free)
Power supply: 200 watts
Display: 15-inch VGA
Keyboard: 101 keys
Warranty: 12-months
Price (rrp): $9450; $11,255 with 200Mb hard disk

Triumph-Adler Olivetti
Phn: (02) 748 2600;
Fax: (02) 748 3390

25MHz 80486 M486
Std. RAM: 4Mb
Max. onboard RAM: 64Mb
Operating system: Dos
Hard drive: 100Mb SCSI
Bus: EISA
Floppy drive: 1 x 1.44Mb 3.5-inch
Serial ports: 1
Parallel ports: 1
Front panel reset/power switches: Yes/no
Half-height devices: 2 internal; 3 external access
Expansion slots: Four 32-bit (all free)
Other: Socket for i860 processor on motherboard
Power supply: 200 watts
Display: 15-inch VGA
Keyboard: 101 keys
Warranty: 12-months
Price (rrp): $22,252

Laptops & Portables

Toshiba Update

Toshiba ISD
Phn: (02) 887 3322;
Fax: (02) 887 3201

9.54MHz 80C86 Model T1000LE
Std. RAM: 1Mb
Max. onboard RAM: 9Mb
Operating system: Dos
Hard drive: 20Mb
Bus: ISA
Floppy drive: 1 x 1.44Mb 3.5-inch
Serial ports: 1
Parallel ports: 1
Expansion slots: Dedicated modem slot
Display: CGA
Keyboard: 84 keys
Weight: 3kg
Power: Battery/mains
Warranty: 12-months
Price (rrp): $4299

Toshiba ISD
Phn: (02) 887 3322;
Fax: (02) 887 3201

8ppm PageLaser8
Rated noise (working): N/S
Compatibility: HP LaserJet IIP; Optional: LIBM ProPrinter, Epson FX, HP7475A
Paper size: A4
Input/output trays: 250/250 sheets
Resolution: 300 x 300dpi
Resident typefaces: 35
PostScript: Optional
Other emulations: N/S
Data buffer: 512K
Buffer expandable to: 2.5Mb
Other: Two HP-compatible cartridge slots
Warranty: 12-months
Price (rrp): $3995

Video-ware

Learn Windows V3 video
Micro Management Services
Phn: (02) 452 5966
Fax: (02) 452 5098
Price: $308

Designed and produced by Video Tutor, Learn Windows V3 is intended to take novices, step-wise to proficiency in the latest release of MS Windows. The 90-minute video covers such topics as using the File Manager, working with Paintbrush, creating and using program groups, and copying and pasting between applications. Students watch a segment of the video and then work through examples in the supplied workbook. Micro Management Services also have a disk-based tutorial for Windows, Teach Yourself Windows 3, for $99.

Harvard Graphics Learning System
Micro Management Services
Phn: (02) 452 5966
Fax: (02) 452 5098
Price: $749 per module
$1296 for all modules

The Harvard Graphics Learning System comprises three separate modules, each consisting of a video tape, work book and tutorial disk. The Harvard Graphics Learning System module provides a solid background to all versions up to 2.3 (the current release). It covers topics such as creation of text charts, altering

Pop-Up and Pull-Down Menu for WordPerfect

- navigating the function key jungle of WordPerfect
- easy access to all commands
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- "Automatic Spillover" between combinations of expanded memory, extended memory & disk file space
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MORE DISK SPACE

Spreadsheet files, desk top publishing files, graphic files, wordprocessing files, database files, accounting files and text files occupy a lot of hard disk spaces and grow quickly in size However, you don t want an expensive new hard disk, nor boxes of floppies Portables and Laptops may not even have these options

The solution is SQUISH plus

SQUISH PLUS creates an imaginary disk in the hard disk Any file written to this imaginary disk is automatically compressed. When you call up the compressed file for use with an application or copy it to another disk, ***SQUISH PLUS*** **automatically** decompresses it on the fly

More Convenient
- fully automatic
- completely transparent
- no change of present work habits
- does not use hot key
- no extra space is needed to decompress
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More Versatile
- database files to as little as 1/10 their normal size
- text and spreadsheet files go down to from 1/2 to 2/3 of normal
- program files very from 5% to 30%
- nearly every file undergoes roughly 50 percent compression
- little noticeable performance penalty for the compression and decompression in majority cases

More Reliable
- no change to content or integrity of your data
- across-the-board compatibility with most popular softwares
- no interrupt - traps
- no potential conflicts with other program

More Secure
- undelete utility is operative in manual or automatic mode
- use current backup and recovery programs, and even hard disk utilities such as undelete, defragment and cache
- use of optional encrypted passwords to assure the highest level of confidentiality for your compressed files

More Productivity
- longer productive life of your disk
- more complex spreadsheet
- bigger data base
- fastest compression on the market
- no need to reformat or repartition of your disk
- bring twice as much data on the road

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- Data compression has been used by hundreds of thousands of people who already know the value of saving disk space in both time and money When compared to other compression programs, SQUISH PLUS represents a quantum leap in convenience, versatility, reliability, security and productivity

All these make SQUISH PLUS ideal for accounting offices, corporations, engineering, government, portables and laptops owners, and indeed everyone who wants to increase the hard disk capacity in an inexpensive way

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chart options, creating organisation and other graphic charts and using calculations. Running time for the video is 120 minutes and recommended training time is four hours. The Harvard Graphics Advanced Learning System covers importing and exporting data, drawing, templates, multiple charts, creating a presentation and other advanced topics. Running time is 120 minutes and recommended learning time is four hours. The Harvard Graphics New Features Learning System covers the new features found in version 2.3 of the program. It assumes a broad familiarity with the package and covers speed keys, the chart gallery, applications menu, hypershow and show copy. Running time is 60 minutes and training time is three hours.

Zenith i486 and SlimSport

ZENITH DATA SYSTEMS has announced its first 80486-based personal computer, the Z-486/25E Desktop PC, bringing personal workstation-level performance into a small EISA-based desktop system. With a fast 64-bit memory bus and optional 1024 by 768 Texas Instruments Graphics Architecture, high resolution video card and VGA compatibility to suit the processor and graphics needs of the workstation market.

Based on the 25 MHz 80486 processor, it has a performance of 11.7 MIPS, 40 per cent faster than ZDS's 33MHz 80386 system. Three open EISA slots are available for adding 32-, 16- or 8-bit cards while the standard 4Mb of RAM can be increased to 64 without using an expansion slot. Two models are available with 80Mb or 170Mb hard disks, on which Dos 4.01, Windows 3.0 and Asymetrix Toolbook are factory installed.

ZDS has also launched the SlimsPort 286, packing laptop PC features in a down-sized design. Narrowing the gap between full-featured portable computers and notebook systems, it is ZDS's smallest-ever 286-based portable laptop personal computer. The SlimsPort 286 has a backlit 24cm white VGA screen, 16MHz 80C286 processor, 20Mb hard drive, standard 1Mb of memory, expandable to 5Mb, and has a battery life of at least 2.5 hours with a 3 hour recharge time. The system's intelligent power management features allow the user to extend battery life by programming components, such as hard drive and fluorescent backlights, to turn off when not in use. The SlimsPort 286 has a full array of expansion ports, including parallel, serial, external VGA, floppy drive and an expansion bus.

Zenith Data Systems, (02) 417 7999. i486 Workstation: $12,999 to $14,799 according to configuration. SlimsPort 286: $5499.

– John Hepworth

New releases?

WE ARE ALWAYS seeking new and interesting products to tell our readers about – we are particularly interested in releases that would be useful to small businesses, professional offices and 'standalone' users. Please address release information to: ***Product Updates,* Your Computer, *PO Box 199, Alexandria 2015 NSW.*** Preference will be given to those accompanied by suitable illustrations. For inclusion in a specific month, material must be submitted 6 weeks prior to the cover date. We are also interested in the stories behind new Australian product development – if there is a tale to your product that you would like to tell our readers, please contact Mark Cheeseman, on (02) 693 4143.

Project that data!

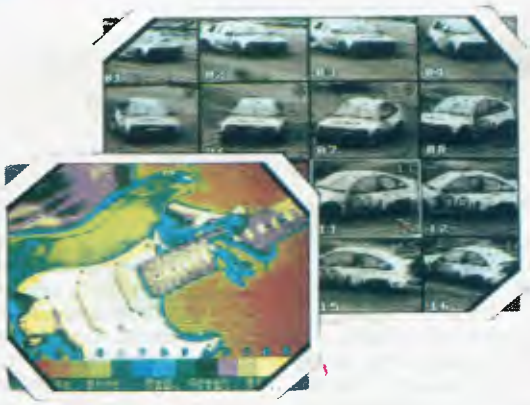
Barcodata 800 series
Trace Technology
Phn: (03) 646 5833
Fax: (03) 646 5887
Price: $18,995 (exc tax)

Designed for high resolution, large screen graphics and data presentations, the new Barcodata 800 series projectors use a new application of digital technology to produce extremely sharp and stable images. The projectors come with a guided adjustment program and built-in help facility. Once image parameters have been defined for

DEMONSTRATIONS ON VIDI AND ALL SCANNERS (SEE ADVERTS THIS ISSUE) BEING HELD AT DARLING HARBOUR AUDITORIUM ROOM 4: NOV 13-14: 10AM- 10PM CALL FOR MORE INFO: (02) 748 4700

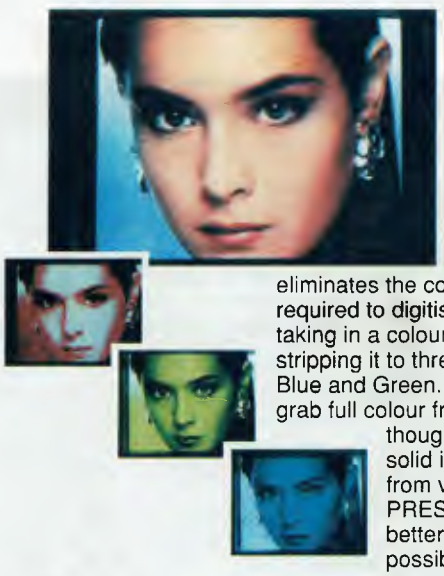
How does this grab you?

VIDI FRAME GRABBER



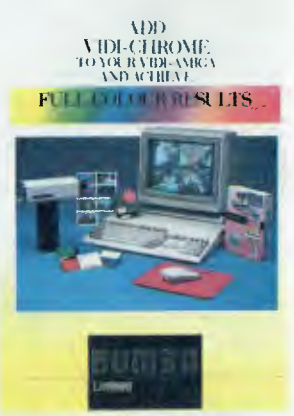
VIDI is the missing link in your graphics presentations. Using VIDI, a cable and your computer, you can capture video images from ANY source that outputs simple video signals. Camera or videos, it doesn't matter, VIDI will grab a perfect image in 16 shades instantly! You don't have to pause your video, you don't even need to have a digital VCR. Multiple frames can be stored into memory for saving as an animation sequence and the software allows full control of brightness and contrast to ensure top quality images. The uses for VIDI are endless; Desktop Publishing, Desktop Video, graphics productions, program enhancements, animation; the limits are your imagination! To introduce VIDI PC into the Australian market. Pactronics are giving away, ABSOLUTELY FREE, VIDICHROME, the amazing software upgrade that allows you to digitise in full colour.

VIDI RGB COLOUR SPLITTER



If you have a colour video camera, the VIDI COLOUR SPLITTER is the ideal companion for VIDICHROME. The RGB COLOUR SPLITTER totally eliminates the colour filters normally required to digitise colour. It does this by taking in a colour signal and then stripping it to three colour bands, Red, Blue and Green. Using this you can grab full colour frames faster than ever thought possible. Take a rock solid image into your camera from video and second later, PRESTO!! VGA images better than you'd thought possible.

VIDI-CHROME



If you thought VIDi was good, then wait for this! VIDICHROME allows you to digitize in FULL COLOUR! Using a series of coloured filters, VIDICHROME takes images, even from a black and white camera, and displays them in dazzling VGA colour! It fully supports all VGA modes, even extended 800 x 600 resolution with 256 colours For those of you with a colour camera, you may like to take advantage of the time savings offered by the VIDI RGB SPLITTER, which eliminates the need for colour filters and grabs images in colour in one pass!

Pactronics

"The user friendly company"

Available from:

Computer Spot (All Branches), Grace Bros, Myer, Harvey Norman. Harris Scarfe, Maxwells Office Equipment, Midi Mouse Computers and all good computer retailers.

For your nearest retailer please contact:
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VICTORIA: Pactronics Pty Ltd, 51-55 Johnston Street, Fitzroy (03) 419 4644
QUEENSLAND Pactronics Pty Ltd, 12 Stratton Street, Newstead 4006 (07) 854 1982
SOUTH AUSTRALIA: Contact N.S.W. or Victoria Office
WESTERN AUSTRALIA: Pactronics, Unit 13, 113 High Street, Wilson 6155 (09) 354 1122
TASMANIA: ESP Marketing, 52 Elphinstone Rd, Mt Stuart 7000 (002) 78 1606

Sun workstations

SUN MICROSYSTEMS has announced its fastest SPARC desktop computer. At 21 SPECmarks (about 28.5 MIPS) the SPARCstation 2 is the high end of Sun's best-selling desktop line, which already includes the entry-level SPARCstation SLC and the low-cost colour SPARCstation IPC.

Combined with Sun's broad selection of servers, wealth of third-party software, ease-of use and conductivity to PC, mid-range and Mainframe computers, it offers a complete solution for workgroup computing. It has a variety of models ranging from a powerful, full-featured base system to a pair of high-performance graphics workstations.

There are four models in the range, with as many options. The SPARCstation 2 is the base system with 19-inch monochrome display, 16Mb of memory (expandable to 96Mb on the mother board), SCSI and Ethernet ports plus 207Mb hard disk (expandable to over 5Gb with external SCSI drives) and floppy drive. The SPARCstation 2GX is the graphics workhorse with snappy windowing, fast text and 2D/3D wireframe imaging and the SPARCstation 2GS offers superb 3-D solid imaging.

Also announced were the SPARCprinter and SBus Printer Card. This combination gives fast and economical PostScript printing. The exceptional performance of a genuine 12 pages per minute comes from the faster image processing being done in the CPU and not in the printer.

Sun Microsystems, (02) 413 2666. SPARCstation 2: $27,995; SPARCstation 2GX: from $34,995; SPARCstation 2GS: $49,995.

– John Hepworth

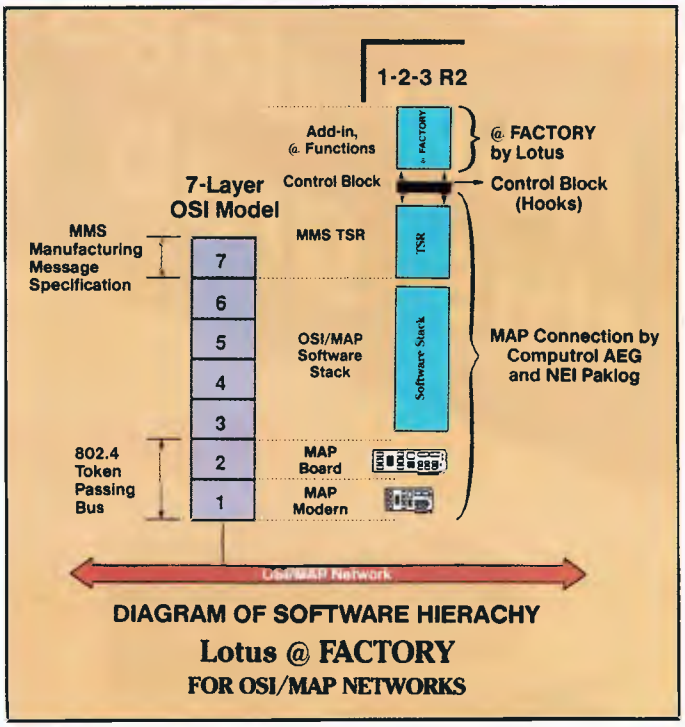


DIAGRAM OF SOFTWARE HIERACHY

Lotus @ FACTORY

FOR OSI/MAP NETWORKS

Phn: (02) 727 0055
Fax: (02) 726 0589
Price: N/S

Executing from within Lotus 1-2-3, @Factory provides the ability to exchange real-time factory floor data with a spreadsheet. The data is collected with the TSR Direct Data module, which can work in the background while other applications are run. The system offers real-time analysis and reporting, logging, historical trending, statistical process control and recipe downloading. The package can also be used to write data from a spreadsheet to PLCs (Process Logic Controls); 1-2-3's macro facility can be used to generate continuously updated displays, produce operator menus and automatically upload data to another computer system. Lotus 1-2-3 v2.2 is included in the price and PC/PLC interfaces are available separately.

Quattro Pro 2.0

Quattro Pro 2.0

BORLAND IS NOW shipping version 2.0 of its popular high-end spreadsheet Quattro Pro. The most notable new feature is Solve For, a goal-seeking facility that solves 'what-if' scenarios. Other new features include database connectivity so that users can almost directly access Paradox (Borland's relational database) files and those in SQL servers and enhanced presentation facilities. Branching slide shows, 3D graphics, and colour 35mm slides are now supported and additional clip art images and import formats are part of the new package.

Borland's new ProShow Power Pack is included free to purchasers of version 2. The Pack includes a full-colour guide to creating presentations using Quattro Pro, a library of macros, two 'headline' typefaces and 100 colour CGM (computer graphics metafile) clip art images.

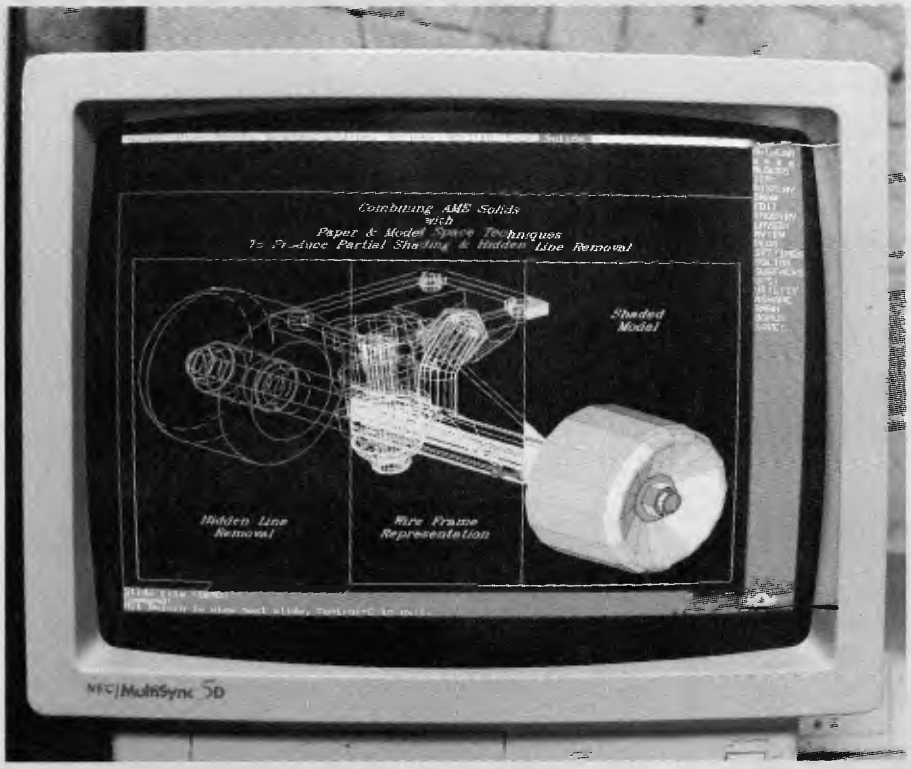
Borland, (02) 418 7330. Quattro Pro 2.0: $750; upgrade from v1: $125 (upgrade free for purchases after 18 August, 1990). ProShow Power Pack: free with Quattro Pro 2.0; $65 for registered users of v1.

each source, the projectors automatically select the settings for the source in use. The 800 series can be used for presentations on screens from 1.2 to 6 metres wide. A built-in RS232/RS422 port enables 256 projectors to be controlled from a PC or Mac and optional software allows single or multiple projector adjustments from one terminal.

Industrial 1-2-3

@Factory
NEI Paklog

AutoCAD release 11



RUNNING ON 80386- and '486-based systems, AutoCAD release 11 uses Phar Lap's 386/Dos-Extender – versions for other platforms will be released shortly. Multiple-view plotting is a new feature to provide designers with flexibility in laying-out, organising, annotating and plotting multiple-view drawings. There is now network support for up to 128 workstations; a file locking system is included. Release 11 incorporates AutoCAD's new Development System (a C programming environment) to help developers create specialised applications; it can also be used to create links with other applications such as spreadsheets and databases.

Other new features include a drawing recovery program, a reference file feature that attaches a reference drawing to the active file, a quick Shade command and additional dimensioning abilities.

AutoCAD Release 11 will be reviewed in our February issue. Autodesk, (03) 429 9888, fax (03) 429 2296. AutoCAD release 11: $5875; upgrade from release 10: $600; upgrade from release 10 386: $350. Education prices: single-pack $1500; six-pack $6000; fifteen-pack $8000.

MS Macquarie

Macquarie Dictionary
Microsoft
Phn: (02) 452 0100
Fax: (02) 452 4387
Price: $80

The Macquarie Dictionary is now available for Word for Macintosh 4.0, Word for Dos 5.0 and Word for Windows 1.1. Note that it is only available from Microsoft on the number given above.

Fresh Lettus

Lettus
Fresh Computer Systems
Phn: (07) 379 6920
Fax: (07) 379 9583
Price: According to configuration

Lettus is an accounting and management system designed specifically for fruit and vegetable wholesalers, particularly those supplying fresh produce to large buyers. The package can handle needs such as selling produce before it arrives from growers, accounting for wastage, price allowances and transfers and dealing with the Department of Primary Industry's produce condemnations. It also has the ability to account back to growers on their produce sales. Lettus runs on a '386-based system under Unix and can support up to eight users. Purchasers receive 24-hour modem or voice support.

From Turbo to Power

PowerBasic
Manaccom
Phn: (07) 368 2366
Fax: (07) 369 7589
Price: $195
$95 upgrade from Turbo Basic

PowerBasic in the latest version of Turbo Basic, previously distributed by Borland and now published by Spectra Publishing.

Quarterdeck releases

QUARTERDECK OFFICE Systems has announced new releases of its Qemm expanded memory program, as well as the company's flagship Desqview and Desqview 386 packages. Called Qemm 5.1, the new release of Quarterdeck's popular expanded memory manager and processor control program provides a number of tools for integrating the current installed base of Dos packages into the Windows 3.0 environment. According to Quarterdeck, Qemm 5.1 will allow Windows 3.0 users to load terminate and stay resident (TSR) programs, drivers and Dos resources into high memory when running in either real, standard or enhanced modes (high memory is between 640 and 1024K, areas of Ram which are usually unavailable to Dos).

'Every Windows 3.0 user who intends to run Dos programs under Windows will want to use Qemm 5.1 to provide access to high memory,' said Therese Myers, president and co-founder of Quarterdeck, announcing the new releases.

Alongside the new version of Qemm, Quarterdeck has unveiled v2.3 of Desqview, which it says will load and run Windows 3.0-specific programs running in real or standard modes, such as Word for Windows, in Desqview windows.

Sourceware, (02) 427 7999. Qemm 5.1: $175; Desqview 2.3: $199; Upgrades: $325 Qemm; $386 Desqview.

– Newsbytes

This new version adds fixed point and floating point Binary Coded Decimal variables to eliminate errors caused by rounding off plus an optional procedural maths package to speed calculations when no maths coprocessor is available. PowerBasic uses all available memory without limiting string space to 64K and provides new data types including extended precision (80-bit) float, quad-word (64-bit) integers as well as flex strings. This new version has built-in Array Sort, Scan, Insert and Delete functions as well as new application oriented functions, including Min, Max, Verify, Remove, Replace, Tally, Repeat. LTrim and RTrim. It also provides for modular compilation and linking of .OBJ files.

TA-O ETV for DTP

TRIUMPH-ADLER Olivetti have launched an entry level desktop publishing system, the ETV400s. Based on a 12MHz '286 processor and a TI34010 graphics processor, the system has 1Mb Ram (expandable to 2), a 27ms 20Mb HDD and a single 3.5-inch FDD; a mouse is supplied. The supplied software runs under Windows and provides word processing, automatic creation of bar and pie charts, spreadsheet and database facilities (the system is also compatible with other Dos and Windows software). A non-impact printer is part of the ETV400S; it has seven typefaces and can produce from 6 to 64 point characters at speeds from 80 to 160 characters per second and resolution in draft mode is 300 *x* 300 dpi.

A standard 'compositor' facility provides for printing in columns that can be wrapped around images, and the ability to print in both portrait and landscape mode in the same document. The database can be used for mailmerge and a forms utility is supplied. The unit can also be used with the keyboard (which incorporates Windows-specific control keys) as an electronic typewriter. The standard monitor is a flat-screen, 14-inch VGA and colour VGA is available as an option. There are two optional scanners: the half-page Handy Scanner and the full-page Pass-Through Scanner, both with a 300dpi resolution. The system has a single 16-bit expansion slot into which an optional line expansion board can be plugged – the board has a single serial and parallel interface as well as an interface for the scanners. A self-powered expansion box with two slots is also available. Optional for the wide-carriage printer are sprocket and automatic sheet feeds.

Triumph-Adler Olivetti, (02) 748 2600; fax (02) 748 3390. ETV400S: $6640.

Powerflex Database Systems

AUSTRALIAN SOFTWARE developer Powerflex has released its PFX and PFXplus database systems. They are designed to be compatible with existing applications written to run under Dataflex. 'We haven't copied Dataflex, but given an alternative,' said Powerflex Marketing Director Tom Aczel. Aczel told Newsbytes that his company's product was now taking sales from Dataflex because it allowed users to sell their compiled code without paying a license fee.

The extra commands and features in PFXplus include panels, arrays, procedures and mixed-language support. The software runs on all levels of PC with colour (or colour emulation) screens.

Powerflex, (02) 387 3888. PFX: $600; extended version PFXplus single user: $900; developer's edition which includes unlimited run-time licenses: $3500.

– Newsbytes

Applause II

APPLAUSE II is a graphics presentation package from Ashton-Tate. With Applause II, you can create your own worksheets or import your raw data from most spreadsheets or databases and create graphs or charts from this data. Once your information is presented graphically, you can jazz up the presentation with Pizazz-clip art pictures and drawing tools. Text can also be added to the presentation with different font types available. A slide show can be created using a script editor and shown on other computers or the images can be printed, or sent to Ashton-Tate's own slide service through a built-in communication utility.

Installation is a snap and takes less than 20 minutes. Once installed, the program is extremely easy to use. Our experience with other presentation packages did not keep us from catching on to Applause quickly. The whole system is menu driven and set up for a mouse. In my opinion even the simplest of users could achieve quite nice results with Applause II.

We are tired of computer manuals being bulky. And we are also tired of software publishers thinking that you are going to sit down and read the manual cover to cover before using the program. Like most people we know, we only consult the manual when the program crashes. Applause has set up their manual as a reference guide and there is only one page in the manual that is not in a reference guide format (the introduction).

The output is, needless to say, very impressive. Note that screens can be saved in the .GX2 format which is the same format used by Show Partner F/X, a very slick slide show and special effects package. Combine these two packages, and you can create stunning self-running presentations.

All errors were trapped correctly and reported with a message and a beep sound. One item of note is that when we used Applause II with DesqView, the mouse action significantly deteriorated. We are not sure whether this is an undesirable feature of DesqView or Applause II. We found less deterioration with Harvard Graphics and DesqView.

Ashton-Tate, (02) 953 9500; Applause II: $595.

– George Slade, Newsbytes

Frontdoor v2

MELBOURNE-BASED software company, Workware Australia, has released version 2 of its communications package Frontdoor. It allows the easy automation of many of the tasks of communications software users, including the broadcast of a memo to numerous remote systems. The software also features compatibility with ISDN PC interface cards to take advantage of ISDN features. A Command History store allows users to repeat any of the last ten commands sent to the host. The software carries the standard range of features present in most high-level communications products currently available including multiple file transfer protocols, remote access, electronic mail, and security for files.

Workware Australia, (03) 826 6711. Frontdoor v2: $495.

– Newsbytes

Faculti from Fujitsu

FUJITSU AUSTRALIA has released a largely locally produced branch office integration system called Faculti, which is to be initially aimed at the financial sector. According to Barry Swan, Fujitsu Australia's information systems marketing manager, Faculti is ideal for developing applications for use in front counter customer transactions, a market where Fujitsu hopes to control 25 per cent of total sales.

Faculti will be promoted on the international market, which is estimated to be worth around $2000 million. Although initially released only as an OS/2 version, Unix and Dos versions will feature in future releases. Faculti works on three levels to achieve maximum usability from users of differing levels.

The first level allows novices to initiate, design, modify, test and provide continuing inputs to the system. For more advanced users, level two allows users to utilise the Fast Workbench interface to take development of applications further, as well as improving program efficiency. The final level allows programmers to access the C function library to increase the functionality of the whole system by adding functions.

For more information contact Fujitsu, (02) 410 4555.

– Newsbytes

ATDOS release

AN AUSTRALIAN software developer has demonstrated an operating system for 80286-based PCs that takes advantage of the chip's protected mode – something that Dos can't do.

ATDOS, developed by Hi-Tech was unveiled at the Queensland Computer Expo in Australia. Unlike Dos, which can only handle one task at a time, ATDOS can launch two or three Dos applications concurrently. In addition it can address up to 16Mb (megabyte) of Ram. Again, unlike Dos, ATDOS uses a GUI (graphical user interface) and is said to be much more friendly to the computer user. Developer Clive Smith-Stubbs told Newsbytes that his product was a suitable alternative to users who didn't want to go to the more expensive 386 machines that Windows 3 or OS/2 would probably require.

Hi-Tech, (07) 300 5011, fax (07) 300 5246. ATDOS: $295.

– Newsbytes

By the book

Laptop User's Guide

Pactronics
Phn: (02) 748 4700
Price: $39.95

Pactronics are now distributing a wide range of useful computer titles. One of these is – *The Laptop User's Guide* by H.J Liesert, published by Abacus, which is specifically written for users of Toshiba, Zenith, Sharp and Compaq portables, but is general enough to be handy for any other brand. It opens with an introduction to Dos and general concepts for new users, and then covers the display (there is an informative discussion on troubleshooting), the keyboard (including many features manufacturers don't document, disks (including logical drives and Ram disks) and rules for safely transporting the laptop. There are chapters on the types of software most usable to owners of portable PCs, such as various utilities and applications, transfer software and games. The 290pp book rounds out with a Laptop Survival Guide for travellers.

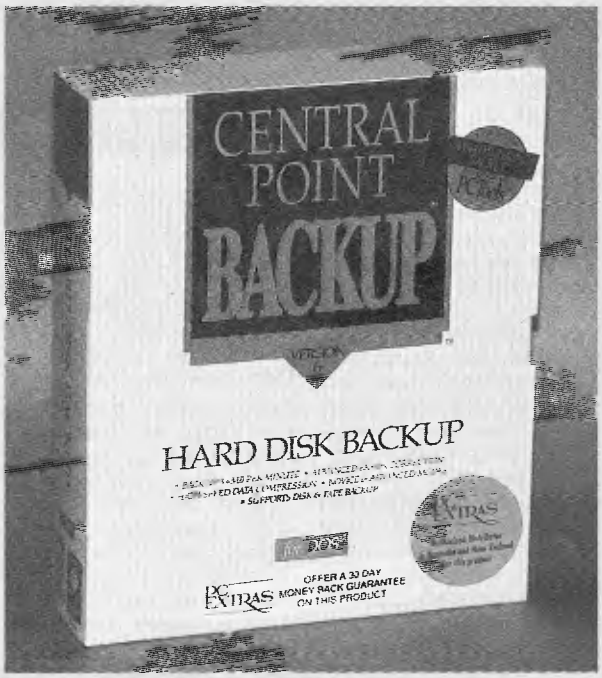
OOPs!

Turbo Pascal v6.0

Borland Pacific
Phn: (02) 418 7330
Fax: (02) 418 7307
Price: $210 Turbo Pascal v6.0
$410 Professional
$115 upgrade to v6.0
$160 upgrade to Professional

Borland has begun shipping version 6.0 of its object-oriented programming language Turbo Pascal. It now includes Turbo Vision, an application framework which allows users to start from a generic, inheritable application to develop their own; it includes support for overlapping windows, pull-down menus, mouse and keyboard events. Data management capabilities include ex-

Central Point Backup



CENTRAL POINT Software has announced Central Point Backup, an enhanced and stand-alone version of the backup module from their acclaimed PC Tools utility software. It includes an updated interface with improved aesthetics and functionality, together with a built-in scheduler, enhanced command line functionality and other features that make it easier than ever to back-up data.

Central Point Backup supports all common Dos devices including floppy disks, hard disks and Bernoulli boxes, and has added support for QIC-40, QIC-80 and Irwin tape drives. This means that users can upgrade from floppy-disk back-up to a tape system without having to change software. It also means that companies with a variety of hardware can standardise on a single back-up program

The new interface in Central Point Backup makes it easier to select files and options, encouraging users to perform regular back-ups. Options and selections can be saved, so that subsequent backups can be launched from the Dos command line. Enhanced functionality makes it possible to restore data direct from Dos, while with the built-in scheduler, users can make unattended back-ups.

Central Point Backup is both reliable and fast. Complete bit-for-bit verification and the Compare feature, which checks back-up against current files, ensures data integrity. National Software Testing Laboratories tests have shown Central Point Backup to be the fastest backup program on the market, while the data compression facility reduces media usage by as much as 60 per cent without increasing back-up time. Central Point Backup will particularly appeal to corporate customers, who want all their end-users to be able to make convenient back-ups of their hard disks, but who want to restrict some utility functions to support staff.

PC Extras, (02) 319 2155. Central Point Backup: $150 (registered users can upgrade to PC Tools 6.0 for $90).

– John Hepworth

tensible collection types and the ability to save and load persistent objects. Version 6.0 also has an Integrated Development Environment which supports overlapping windows and mouses; it offers a multi-file editor, dialog boxes, a cut and paste facility and integrated debugging with a new register window and condition break points. The new built-in assembler gives programmers complete access to Pascal symbols and allows the addition of assembly language routines to boost performance. The Professional Pack includes a full version of Turbo Pascal plus a command line compiler which runs in extended memory and allows compilation of very large Dos applications. It also includes an interactive profiler to measure program performance and help programmers spot execution bottle necks.

MathType Mac and Windows

ONE OF THE greatest limitations of word-processing and page layout programs at the moment is the area of equations. It is too often very difficult to achieve professional results in complex equations in a way which calls for as few hair-pulling sessions as possible. For the professional (and the not so high level) user, Design Science has released MathType, a very powerful equation generator.

Whether working on a Mac or a PC, MathType gives you the same power, and can even open Mac MathType files on the PC and vice versa. Additional fonts are supplied to allow for a wide selection of mathematical situations. Multilevel equations are easily set up, and even the most complex equation can be on the screen within a few minutes, ready for porting to your favorite page layout program.

The program works by presenting, for example, an integral sign with dotted outline boxes (slots) for upper and lower limits, and the function to be integrated. By simply inserting the appropriate values in these slots, the user ends up with a professional looking equation with a minimum of fuss. For repetitive situations, 'strips' of symbols, templates, and equations allow the quick insertion of these by clicking on them. Nineteen pop-up menus provide the full range of symbols and equation templates, each of a particular group of symbols or equation types.

The program has a handy feature of recognising functions like sine, and automatically setting them to non-italicised (variables are automatically set in italics). Any part of an equation can have its type style and size attributes changed, or these can be changed for all equations, allowing the easy integration to an established publication style. Spacing and measurement attributes can also be modified. Files can be saved as EPS (Encapsulated PostScript) or PICT on the Mac, and EPS or Windows Metafile (WMF) on the PC. Equations can also be copied into the Windows clipboard as WMF or Tex compatible, which allows equations to be pasted into Tex files for output. On the Mac, MathType can be run as a Desk Accessory or under Multifinder for use while the page layout program is being used. On the PC, MathType supports Dynamic Data Exchange (DDE). MathType is one of the best equation generators on the market. The whole program allows the user to get the results he/she wants, while the ease of use is not part of a trade-off for power. The program has been well thought-out, with a professional looking and performing product being the aim and result.

Solutions, (075) 39 5422, fax: (075) 39 3482. MathType: $295 Mac; $295 PC.

– Sean McNamara, Newsbytes

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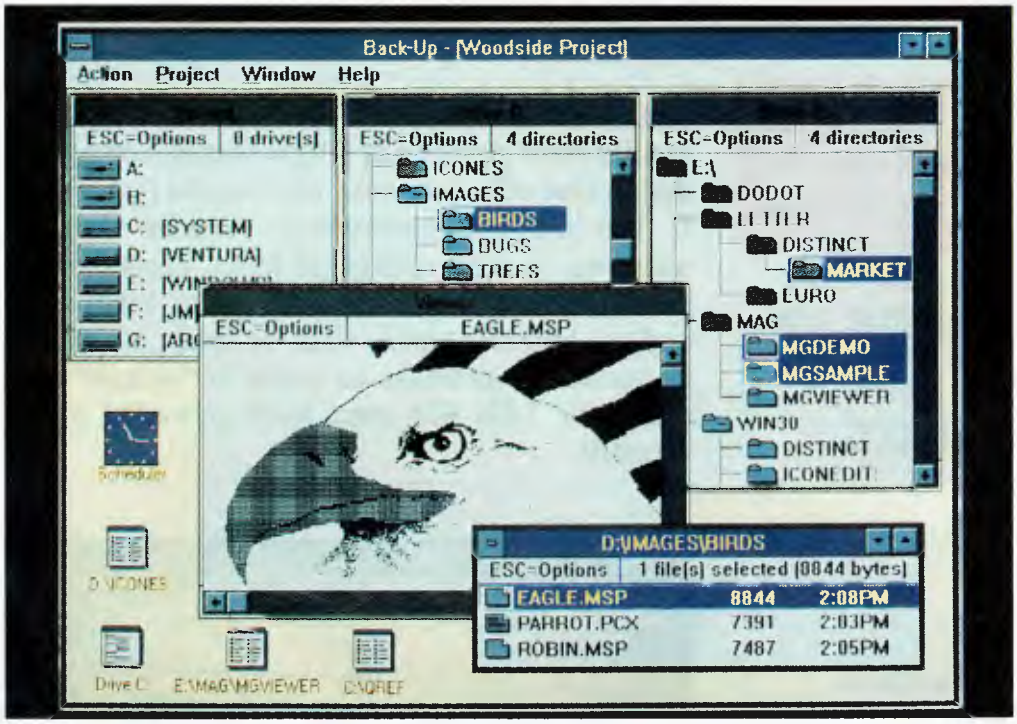


Backup for Windows

Distinct Backup for Windows 3

Solutions

Phn: (075) 39 5422
Fax: (075) 39 3482
Price: $295

Distinct Backup features the ability to backup by program groups, by named groups, directories and files, as well as the entire system. There are options to view files before selecting them for backup, screen blanking during backup, compression and password encryption. A summary of Backup Groups is available to show the number of disks that will be required for each procedure. Configured backups can be scheduled on single systems or across networks to be done daily, weekly or monthly.

the A500 has moved strongly into this once Apple dominated domain. Amiga 2000s have found their place as reliable workhorses for low-cost graphics production and desktop publishing facilities in many schools.

Primary school children can use Deluxe Paint II to produce colourful images to illustrate books or talks. As the children improve their skills they can move on to Deluxe Paint III, with its powerful animation facilities. Results of their work can be easily transferred to videotape, enabling titling and graphic effects to be added to classroom video programs; or they can be printed from low-cost dot-matrix colour printers.

Later, children can use AmigaVision to compile still images and animations, together with sound effects and text, into complex presentations which can be copied to videotape as required. All this is possible without resorting to programming, though some may argue that AmigaVision is based on object-oriented programming principles.

For older students, introduction to programming concepts and languages can commence with Amiga Logo or AmigaBasic. Both languages offer structured facilities to enhance the learning of good programming methodology. A drawback with AmigaBasic is its editor, one of the world's worst! An upgraded version of AmigaBasic was rumoured to be coming with version 2.0, but it hasn't been seen yet.

Programmers are well catered for with a huge range of languages available for the Amiga. Basic alone has multiple variations including GFA-Basic, F-Basic 2.0, Hi-Soft Basic, True-Basic and Power System-Basic.

Other languages for the Amiga include Pascal, Fortran, Modula-2, ADA, Comal, C, C++, Cobol, Assembler, Forth and, of course, Logo. There are even Case tools now available for heavy duty software developers. The Amiga provides a very attractive environment for training in software development, its multi-tasking capabilities enhance the attractiveness.

1990 software releases

1990 WAS A year of consolidation rather than dramatic new releases. New versions of most major productivity packages became available. In most cases, the new releases provided additional facilities and fewer bugs than previously, though this was not always the case.

Among the upgrades released in 1990, Excellence v3.0, PageStream v2.0 and Professional Page v1.3 were notable. I'm less than enthusiastic about Excellence v3.0. More than ever it appears not to know whether it's a DTP package or a word processor. It now seems to me to be a rather slow word processor and an inadequate DTP package.

In my opinion, PageStream has leapfrogged to the front again as the best all-round desktop publishing package for the Amiga. If you can afford the set, Professional Page v1.31, together with Professional Draw v2.0 and Transcript word processor, provides a potent desktop publishing suite. Combine it with the processing power and display capabilities of the Amiga 3000 and you have massive productivity at a relatively modest price.

Utilities

1990 HAS SEEN the release of a number of very useful diagnostic and repair utilities. Among these Doctor Ami, Ami Alignment System and DisKwik 2.0 stand out. Use of these packages can save a trip to the repair shop, not to mention dollars.

General purpose utilities continue to proliferate. DiskMaster version 1.4 has proved to be my most used utility, followed by VirusX, Dos-2-Dos, Grabbit!, BAD, and GOMF 3.0. My toolkit would be light without Project D, A-Max and Cross-Dos.

Using an Amiga (or any other PC for that matter) without a comprehensive toolkit of utility software at hand, is a bit like taking a drive across the Nullarbor without a spare tyre.

Entertainment

WHAT CAN I say? Every time the prophets of doom and gloom predict another collapse in the entertainment software market, a flood of new products hit and everyone is all smiles again. I tend to feel that 1990 releases have placed the emphasis on quantity rather than quality. There have been some really awful ports from Dos and C64 environments. At the same time there have been a few gems released. Klax has taken over my household, its prime competition being F-29 Retaliator. Jumping Jackson is a favourite of the smaller people.

Hardware

MEMORY PRICES continue to decline, albeit painfully slowly. A couple of megabytes of Ram chips can now be had for well under $200, and a couple of 1Mb SIMMs also leaves change from $200.

Ridiculous expansion boards are available for the A500, capable of increasing its Ram to 8.5Mb. At the same time, hard drive suppliers have just about forgotten about the 20Mb size – 45Mb is a realistic minimum size for the Amiga and 320 Megabytes is no longer uncommon.

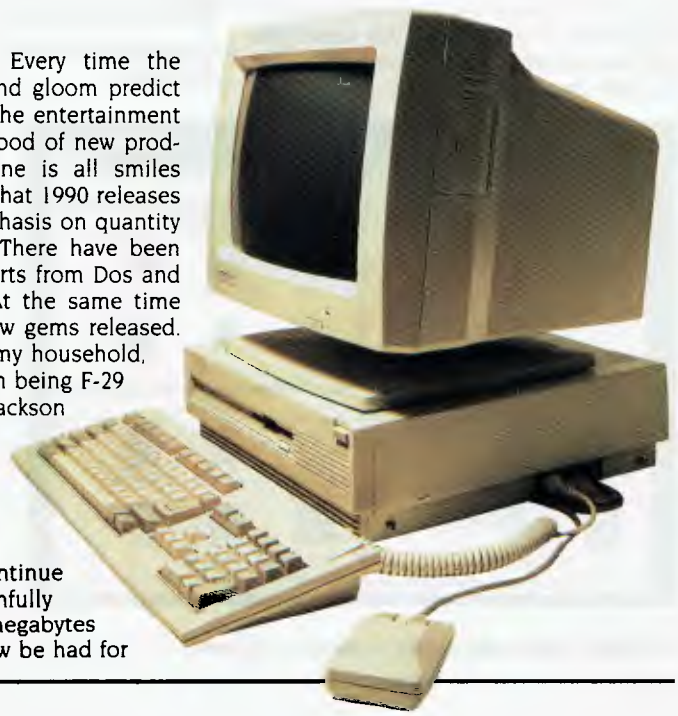
There is even an internal expansion board for the A500 which provides full MS-Dos PC-XT compatibility – unbelievable!

1991

SO, WITH ALL the excitement this past year, what can we look forward to in '91? Rather than make predictions, I would prefer to offer a wish list.

For release early in 1991, I wish for an Amiga version of Microsoft Flight Simulator version 4 (great on the PC – should be dynamite on the Amiga!). I also wish for Lotus 1-2-3, WordPerfect version 5.1 and Ventura Publisher for the Amiga. Not because I prefer them to existing Amiga packages (except in the case of WordPerfect 5.1), but because of the credibility they will give the Amiga in the business market.

Finally, I wish for continued development of big packages which take advantage of big memory, hard drives and the Enhanced Chip Set. Some packages which, while out of the reach of home users, will give the business and professional PC user something to get their teeth into. □



JOHN HEPWORTH

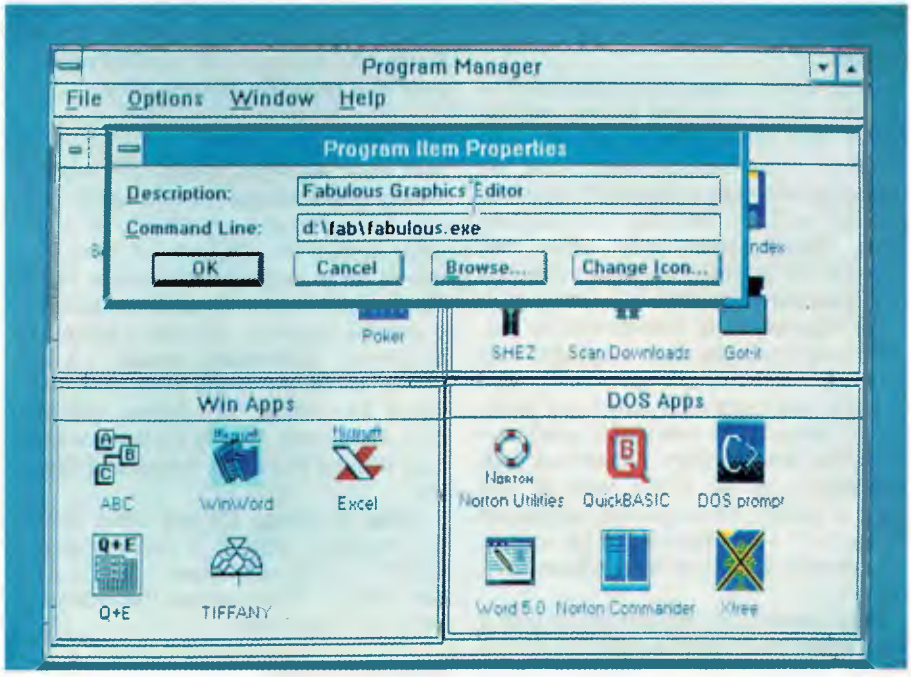
Adding and editing icons

IN A RECENT 'Windows Wonderland' I looked at organising Windows groups. The aritcle assumed you had let the Windows Setup program find all the Windows and Dos applications on your system, and allocate icons. With Windows applications, Setup should have found all such programs, and extracted their icons. With Dos applications it is a different story.

When adding Dos programs to a group, Windows Setup will only look for Dos programs that it knows about. It has the information it needs to set up PIF files for these programs, so it creates one and adds an icon to the appropriate group. Other Dos programs must be manually added to a group. Either way, it uses a generic icon. It isn't very helpful to have several programs each using the same icon, but there is a solution. It is quite easy to select a different icon, and just as easy to create your own icons.

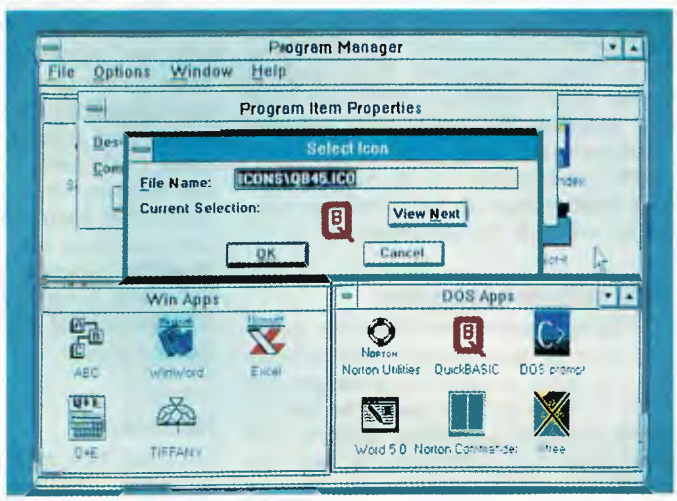
Let's say you have written a Dos program called FABULOUS.EXE and want to run it from inside Windows. Naturally Windows doesn't know this program or what it needs, since you have only just finished compiling it. You must add it to a group and create a PIF file. It will then use the generic icon, although you could take one from another application or icon file, or make your own.

To add a program, expand the icon for the desired group in the Program Manager or click once on any icon in the desired group if it is already open. Now click on File on the menu bar at the top of the Program Manager window. From the menu that drops down, select New. Program Manager will ask if a new program group is



Enter Windows titles and the commands to launch programs in the Program Item Properties dialog box.

Individual icons make it easy to launch programs.



Select files containing icons in the Select Icon dialog box.

to be added, or a new program item. Choose Program Item.

Now another dialog box pops up, entitled Program Item Properties. This allows you to enter the description of the program and its command line. The description is the text that will appear at the top of the window containing the program when it is launched. The command line is the name of the program, including its extension, plus the drive and/or path if it is on a different drive or in a different directory.

Adding FABULOUS.EXE to a group will show how it is all done. Let's assume that it is a graphics program, and that there is a group called Graphics. Let's also assume that Windows is in directory WINDOWS on the C: drive and FABULOUS.EXE is in directory FAB on the D: drive. Open the Graphics group icon and then select New from the File menu. The desired title is Fabulous Graphics Editor, so enter that in the Description text box. Use the tab key or the mouse to go to the Command Line text box and enter the complete path for FABULOUS.EXE. Clicking on the OK button would finish the job, using the generic Dos icon. Using another icon takes an additional step before clicking the OK button. At the bottom right of the Program Items Properties' dialog box is the Change Icon button. Click on it, and another dialog box opens up.

The Select Icon dialog box has a text box for File Name, a display of the currently selected icon, and three buttons. These are View Next, OK and Cancel. Icons can be contained in many sorts of files, and a file may have more than one icon in it. As an example, EXCEL.EXE has one icon, as do most Windows applications. PROGMAN.EXE, the Windows Program Manager, has the various generic icons, while a public domain file called ICONLIB.EXE contains nothing except for dozens of icons.

To select a different icon, type into the File Name text box the name of the file containing it. The first icon in the file is then displayed in the centre of the Select Icon dialog box. Clicking on View Next then shows, in turn, all the icons in the file. When the desired one is found, click on OK. The Program Properties dialog box then reappears, and clicking on its OK button attaches the icon to the application. Icons can be changed at any time, not just when adding an application to a group. Just click once on the icon for the application in the main Program Manager window, and then select Properties from the pull-down File menu.

Having loaded the files onto the system, and selected an icon, all that remains is to create a custom .PIF file. A future Windows Wonderland will talk about .PIF files, but right now a few details are in order. When Windows runs a Dos program, it needs some information about the needs of that program. This information is stored in a file with a .PIF (Program Information File) extension. When an .EXE, .COM or .BAT program is run from an icon or from the File Manager, Windows looks for a .PIF file with the same name but a .PIF extension. It then knows how much memory the program must have, how much it would like and many other things. PIF files can be created or edited with the PIF Editor accessory, though if Setup knows a Dos program it automatically creates the .PIF file.

Select colours in ICONDRAW from the ribbon, and tools by clicking on a button.

ICONDRAW

WHAT IF YOU don't like any of the available icons and want to create a new icon for FABULOUS.EXE? I needed individual icons for each of the many Dos programs on my system, and took a look around the better local Bulletin Boards. There are several files out there, but none of them containing what I wanted for QuickBasic. The time had come to draw one.

ICONDRAW is a program specifically designed for the task. It is a proper Windows 3.0 program, so copy it onto your hard disk and use Windows Setup to add it to a group.

Launch ICONDRAW, and its windows appear. The drawing is done on an enlarged icon about 5cm high and about 3cm wide. At the right of this area is an icon in the actual size that will appear on the Program Manager. As the large image is edited, the preview image constantly changes to keep the artist very aware of the appearance of the finished product.

The menu bar has the names of three pull-down menus. Down the left side are the various colours available, and there are buttons for the six available tools. It is possible to draw an icon from scratch, and then save it. Alternatively, if an icon is in a file with an .ICO extension ICONDRAW can load it, edit it and save it under the same name or a new name.

Now select a colour by clicking at the appropriate place on the ribbon down the left on the screen, and a tool by clicking on a button or via the Tool menu. The six tools draw single pixels, lines, boxes or ellipses. There are two versions of each of the box and ellipse tools. One merely draws the outline, and the contents are unchanged, while the other draws the outline and then fills it with the same colour. Finally, save the icon, and use Program Manager to attach it to your program. The whole process takes just a few minutes, and is not at all hard though the appearance of the finished product is very dependent on your inspiration and artistic talent.

A Graphic User Interface needs good icons that can be quickly identified at a glance, otherwise the user must look all around a screen, reading labels under generic icons. This is in many ways harder and less productive than reading from a list. Windows 3.0 makes it easy to replace a generic icon with one of your choice, and ICONDRAW simplifies the creation and editing of icons.

ICONDRAW is found in the file ICONDR.arc (where arc is ZIP, ARC, LHZ and so on) on most bulletin boards, where files of icons may also be found. Alternatively a disk with ICONDRAW and hundreds of icons is available for $10 including postage and packing from Salrail Pty Ltd, PO Box 102, Haberfield NSW 2045. □

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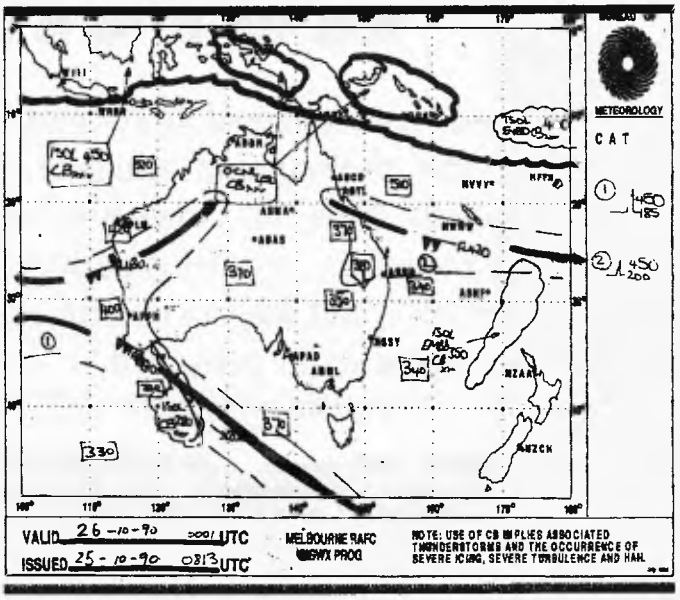

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ASSEMBLING QUICKBASIC

Part 13

Jeff Richards has examined arrays and devoted time to discussing strings in earlier tutorials. Now, he shows how to put the two together, in what is perhaps the most complex, and the most useful, of the routines so far presented.

THE MANNER IN WHICH variable length string arrays are stored in memory is, not unexpectedly, unique. The array that is maintained is in fact an array of string descriptors – four-byte data structures that provide the length and current location of the string. To locate the contents of a string array element the steps are:

- Find the address of the start of the array descriptor table.
- Find the pointer in the table to the start of the array data.
- Index into the array data for the required array element.
- Use the array element to obtain the length and address of the string.
- Access the string using the address and length information.

Like many of these procedures, it is more complex to describe than it is to code the routine.

The example routine will scan an array of variable length strings looking for a match with a supplied string. The return value will be the array element number that matches the supplied string, or -1 if no match is detected.

The first part of the routine checks that the string array is 1-dimensional, and then sets up the registers needed for scanning through the array of string descriptors. Register CX contains the

```
TITLE     STRASCAN            QuickBASIC 4 Library Routines
DOSSEG
.MODEL MEDIUM

;*************************************************
;* DECLARE FUNCTION STRASCAN% (A$(), S$)         *
;* Search array A$() for a match with S$ and return  *
;* array element number of match, or -1 if not found. *
;*************************************************
.CODE
PUBLIC StrAScan
StrAScan    PROC
     Push   BP          ;Save BP
     Mov    BP,SP       ;Make BP the frame pointer
     Push   SI          ;Save Registers
     Push   DI
     Push   ES
     Mov    bx,[bp+6]   ;Get string argument
     Mov    dx,[bx]     ;DX = string length
     Mov    si,[bx+2]   ;DS:SI = string
     Mov    bx,[bp+8]   ;Get array descriptor address.
     Mov    cx,[bx+8]   ;Get # of dimensions.
     Cmp    cl,1
     Jne    NoMtch      ;And exit if not 1.
     Mov    cx,[bx+14]  ;CX = # of elements.
     Mov    es,[bx+2]
     Mov    bx,[bx]     ;ES:BX = Element 0.
     Mov    Count,0     ;Set count to zero.
SLoop: Push  cx         ;Save array element counter
     Mov    di,es:[bx+2] ;Get address of A$(n).
     Push   es          ;Save ES
     Push   ds          ;Copy DS to ES
     Pop    es
     Mov    cx,dx       ;Get length of S$,
     Cmp    cx,es:[bx]  ;Compare lengths,
     Jnz    Skip        ; and skip if not equal.
     Push   si          ;Save string offset pointer.
     Repe   Cmpsb       ;Compare while equal.
     Pop    si          ;Retrieve string offset pointer.
Skip: Pop   es          ;Retrieve array segment
     Pop    cx          ; and array element counter.
     Jz     Match       ;Yes - we have found it,
     Inc    Count       ; else bump counter
     Add    bx,4        ; and bump pointer
     Loop   SLoop       ; and look at the next one.

NoMtch: Mov  Count,-1   ;Set error return

Match: Mov   ax,Count   ;Get return value

Exit: Pop    ES
     Pop    DI
     Pop    SI
     Pop    BP
     Ret    4           ;2 Arguments
 StrAScan ENDP

 .DATA
 Count    dw    ?
 END
```

STRASCAN scans an array of variable length strings looking for a match with a supplied string. The return value will be the array element number that matches the supplied string, or -1 if no match is detected.

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number of elements in the array, while ES:BX points to the first element.

Each string in the array is then compared to the supplied string. This process is complicated because the 80x86 does not support dual register sets, and the most convenient way to compare two strings must make use of the same registers that are being used to work through the array elements. Therefore the comparison must start by saving all important registers on the stack. It then checks the string lengths and exits if they are not the same.

This string scan routine is so fast that it is actually quicker to do a scan of an unsorted list than it is to do a binary search of a sorted list.

If the string lengths are the same, the strings are compared with a repeated compare instruction with a byte-size indicator (REPE CMPSB). If this terminates with the zero flag set, then the strings are equal and the routine is finished. Otherwise, the routine moves onto the next array element. If all elements are processed without a match, then the routine loads a -1 result before returning. If a match was found, then the running-count value that was being maintained is loaded into the AX register for return to the caller.

The routine is only suitable for variable length string arrays – fixed length strings are stored in memory in a different format. The code to scan a fixed-length string array is actually simpler than this routine. Each string element is addressed as an offset from the start of the previous element, and there is no need to compare the lengths.

This string scan routine is so fast that it is actually quicker to do a scan of an unsorted list than it is to do a binary search of a sorted list. However, if the binary search was coded as an assembly-language routine . . .

From the description of the way in which string arrays are maintained, it would appear that there is a convenient means of sorting strings. Assembly language routines are not allowed to manipulate strings directly, but what about the elements of a string array? These elements are string descriptors, so it would seem that simply swapping the string descriptors in the array would provide a simple and efficient way to sort string arrays without touching the strings themselves. Unfortunately, it is not legal. QuickBasic maintains certain internal tables that will detect when the string descriptors have been moved, even if the strings themselves are not touched, and will issue a 'string space corrupt' message after any attempt to shuffle the array of string descriptors. It is possible, however, to implement an efficient assembly language string sort that shuffles descriptors only – not the string data – as long as the internal QuickBasic routine is used to do the actual descriptor swap. □

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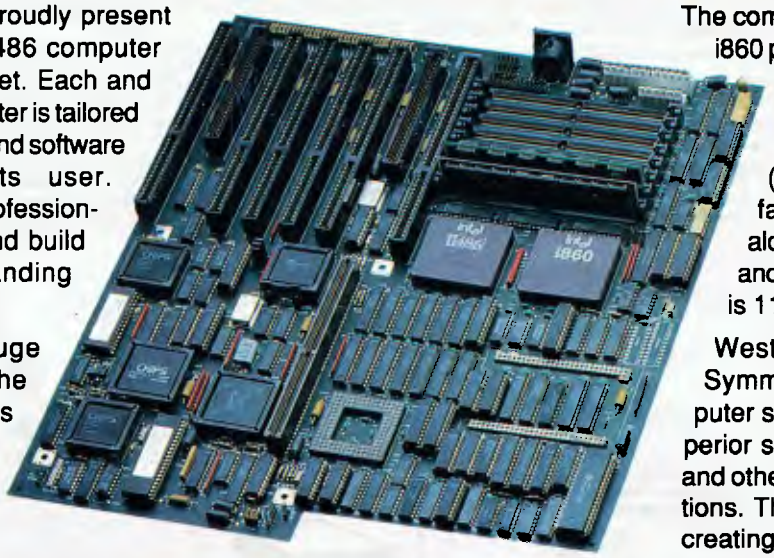

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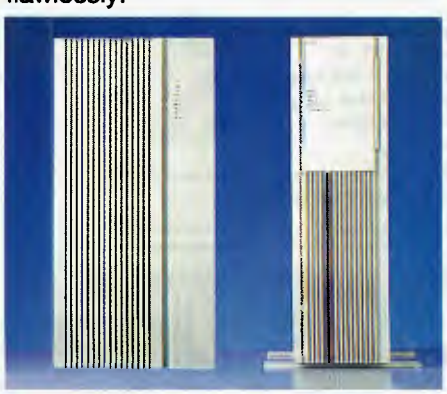

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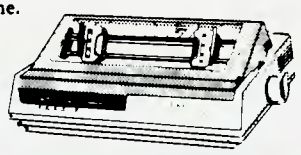

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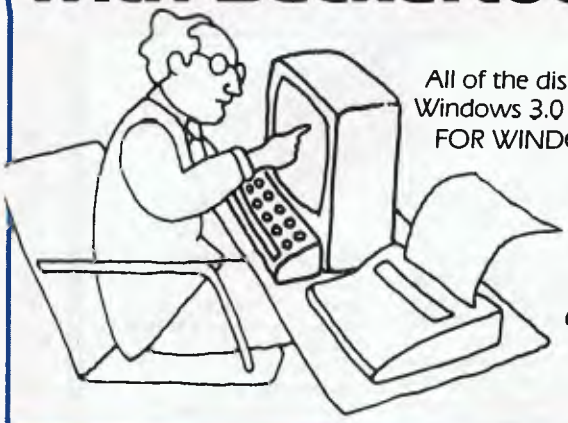

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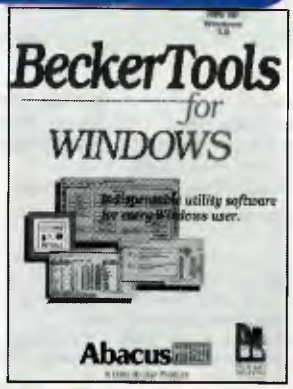

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STEWART FIST

Well and truly StuffIt

I've had the Macintosh CD-ROM Library disk version of The Right Stuffed for a few months now, but I've been hesitant to run it and hesitant again to write about it until I'd seen a reasonable amount of the material on the disk. And that wasn't easy.

It holds well over 600 megabytes of files, most of which have been compressed and archived using Raymond Lau's shareware program, StuffIt – so you are talking about 900 to 1000Mb here. The index file alone takes a large slice out of a ream of paper just to print out – but this listing is rather cryptic, so you are left wondering about much of the material.

This disk was compiled specifically for Macintosh bulletin board systems as a super library-resource of user-group, public domain and shareware programs. QLTech are openly suggesting that BBSs make these programs, files and stacks available for free copying, with the stipulation that you only post a small notice crediting the company and The Right Stuffed CD-ROM as the source.

I have a feeling that there are some files and applications on this current disk that I'm destined never to see.

QLTech (the old Quantum Leap Technology) compiled this disk from user group, BBS collections and archives, and they invite user groups and individuals to contribute programs and files for inclusion in future versions. If you've got a program, a file or a stack that you feel may make you some money as shareware, this is possibly the best and cheapest way you've got to get the ball rolling.

Mind you, it may take the owner of the new disk some time to find your program (and even longer to send you any money). When there are 600Mb of stuffed files on a disk, you don't evaluate them all in one evening of casual hacking.

I have a feeling that there are some files and applications on this current disk that I'm destined never to see. The disk has a number of levels of directory, and when you find your way down to the bottom layer you are then presented with a list of, on average, 80 or so filenames. Many of these names are meaningless at first glance and, of course, being on CD-ROM you've got no way of discarding those that you've seen and don't want, or marking those that you want to look at further.

The only way to test and retain access to a file/application is to go through the whole messy process of unstuffing it and storing it on a floppy disk (you'll soon eat up your hard disk if you try to store there), and this becomes mightily expensive in floppies.

It's like being handed the keys to an immense warehouse full of filing cabinets which might contain important and valuable information – but you also know that some of the files contain bombs. You don't know where to start because no one has left instructions and, after you've been snooping around for a few weeks, you begin to forget where you've been.

And to add to your problems, every third or forth file you open bombs out your system in some way, and you've got to stop, close down the computer, fire up and start again.

Some of the problems I encountered were weird and wonderful. For instance, I've never encountered a fault before which locked out the interrupt switch on my Mac II, or a text file that bombed out WriteNow and MacWrite, but worked perfectly with Nisus. I guess that I'm just a virgin when it comes to bulletin board applications.

Don't forget that these are all hacker-written programs, which in my book means that you'll get some of the best and some of the worst of programming, all mixed together. And you'll have no way of knowing which is which until you take a risk and try each program out.

The Read-Me manual files on this disk are also particularly horrible (when they are there at all!). It is not just the incredible spelling and grammar mistakes (don't they own spelling checkers?), but the fact that half of the programmers don't tell you even the basics about their program.

I played around with one interesting-looking program for about half a day, trying to get it configured and working, then gave up in disgust. The Read Me file gave no assistance at all; it just told me where to send my money if I liked the program. I didn't! But the point is that you've got to be prepared to spend some time looking.

This is not a disk for beginners, but bulletin board sysops will love it.

Given the current paranoia about infected programs, I am quite confident that there isn't a virus on this disk – I must admit though that I waited a couple of months (to give them time to send me a recall notice) before I booted the disk up.

Six hundred megabytes of erratic programs and occasional weird files is enough of a problem alone, but most of the files on the disk have been 'stuffed' (compressed – often to half their normal size) and therefore they are not executable without first 'un-stuffing' them. Lau's shareware program UnStuffIt is included on the disk for decompression, and the latest version of the original StuffIt can also be found in the utilities section. If you want to use StuffIt you should register and pay a fee of $25, but the UnStuffIt application is free.

Too much!

ACTUALLY, MY main bitch about the disk is that there's too much on it. QLTech has attempted to pack as much software into the one disk as it can, and you've got to credit them with the best of motives. But unstuffing 600Mb of data, a file at a time, just to see which is useful and usable, is a time consuming, thankless task. What

should have been a month of joyous serendipity – stumbling over new and interesting programs, files, clip-art, stacks, games, fonts, F-keys, Inits, C-devs, and whatever – became for me a laborious chore.

So this is not a disk for beginners, but bulletin board sysops will love it and fanatical users of BBSs will probably wallow in the multitude of files quite happily for some time. If you enjoy hacking and own a CD-ROM then you should buy this disk. It will keep you off the streets for the next year or so, and you'll get a lot of fun from trying to work out what some of the applications are meant to do.

There are 28 folders at the first directory level, and generally they hold between 2 and 20 second level folders. Each of these holds, perhaps, 50 to 80 StuffIt archives, which may be either one file or half-a-dozen related files (the application, subsidiary files plus a Read-Me manual, and so on).

Obviously I can't go into this enormous range of products in any detail, so here are some overall impressions:

Adobe have supplied a few hundred screen fonts (on which they retain copyright). If you aren't using Adobe Type Manager and you produce newsletters or low-quality artwork, you'll find that this folder contains a number of large-size fonts which are ideal for headlines and so on. There are a lot of typestyles here that I've never seen before, but remember you are only getting the screen versions.

In the Art folder I also stumbled across an Adobe type-catalog stack, but it only had a few of the major 'standard' typestyles in it. It is mainly designed for store promotion, I would guess.

The Art folder (80Mb stuffed) has an enormous amount of clip-art, cartoons, comic book characters, drawings of cars, jet planes, spaceships, astronomy, people sitting, standing and talking, architecture, trees, flowers, landscapes – you name it. This is the normal jumble of bits and pieces that you find on most clip-art disks, but here you have a couple of hundred stuffed megabytes.

For many people involved in desktop publishing, this Art folder is worth the price of the disk alone – but be warned, QLTech say they don't have copyright clearance on any of this material, and they have no way of knowing whether the supplier of the artwork owned the copyright or not.

There are four folders, devoted to C-devs, DAs, F-Keys and Inits; this is the sand-pit of the true Mac hacker. I delved in fairly well at first, unstuffing file after file trying to work out what they were for, but I must admit that I chickened out after a while because they were bombing my system with monotonous regularity. I have this irrational fear of dumping alien Inits and related dwarf programs into my System file when I don't know where they come from.

I have yet to find anything useful in these three folders other than the run-of-the-mill variations on clocks, calendars and calculators. However, I am sure that there must be some useful programs here – the Law of Averages alone tells me that.

Interested in CD-ROM?

STEWART FIST will be contributing an occasional column on developments in the technology and new CD-ROM releases. His 'The Light Fantastic' series, which appeared in our January, February, March, May and July 1989 issues, covered the history of the technology, the breakthroughs and the development of industry standards that made compact disks for the PC a reality. If you missed the series, back issues are available by writing to *Your Computer*, PO Box 199, Alexandria 2015 NSW; please enclose $6 per issue (no cash!) to cover post and packing.

If your interests are more practical than theoretical, the following companies supply CD-ROM hardware and software:

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33 Talavera Rd,
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2171 NSW, and costs $159.95. Owners of Graphic Writer II can upgrade for $85, and being the distributors, ATSS provide full support for the program. Dealer enquiries about the Seven Hills Software range are also invited by ATSS.

Losses

WHILE NEW software for the IIGS keeps coming, there have been a few losses recently. Applied Ingenuity has now shut up shop, leaving owners of their products without support. Ingenuity produced a range of Apple II hardware peripherals, including hard drives (InnerDrive and OverDrive) and the GS Juice+ memory card. They were never a big concern in Australia, but no doubt quite a few IIGS owners have an Ingenuity product. The IIGS Buyer's Guide has also discontinued publication. The subscriber list for the Buyer's Guide has been purchased by InCider, and subscribers will receive it as a replacement from now on.

Apple have recently merged Claris back into the fold, after having let it run as an independent software developer for some years. Apparently Apple wanted to expand their ability to produce application software and Claris was the answer. Whether this is good or bad news remains to be seen. Apple has recently released a range of low cost Macs. The new Macs feature 8-bit or colour, which makes the IIGS still look very good. There are lots of other rumours floating in the pipe line, including a supposed big announcement from Apple about their intentions for the future of the II series computers. If this occurs, I'll report on the announcement if it has any bearing on the IIGS. But with a string of new products coming up, I can only see the IIGS getting better and better.

Just for kids

TWO NEW SOFTWARE products by Lawrence Productions are now finding great favour with an audience that previously has not really been catered for. It may seem a rather dangerous exercise to let a two or three year old play with a computer, but these programs only use the mouse, and users quite literally cannot go wrong. In fact, the only exit is via the reset key, so running the programs from a hard disk can't let the ankle biters accidentally wipe all your files. The programs, both distributed by Broderbund are Katie's Farm and McGee. They have a similar look and use digitised sounds with action graphics to let the littlies wander from one graphic to the next by selecting one of four icons at the bottom of the screen. While older children will quickly get bored, a small child will be kept amused for hours, even if they see the same graphic a hundred times. On the way they will learn orientation, hand/eye coordination, shape recognition and also gain a familiarity with a computer.

Katie's Farm is a child's view of a farm, with the usual animals that need patting, feeding, milking and talking to. At boot up Katie asks for disk 2 which then brings up the home graphic. From here, four more large icons let junior go to the scarecrow, the tree and the barn via two possible entrances. The barn icon leads to a cow, some chickens, cats and a horse. It's all very cute and kids will love the realistic sounds and the actions in the graphics. Adults will be impressed by the quality of the graphics and the number of paths Katie can take.

McGee is a cute three year old who plays, chats and walks around the house with his trousers half down. He has lots of options, including waking up Mum, playing with a ball (with 3D graphics by the way) proceeding to the bathroom or going down stairs. From these options, other possibilities are opened up such as performing his ablutions in the bathroom. He rubs his teeth with more noise than a jet plane and he can even take a bath. Downstairs is the living room and the kitchen where the family dog lies sleeping, ready to receive an unlimited supply of biscuits that are consumed in one mighty gulp. McGee can ring up on the phone (though all he gets is the weather report) or he can proceed outside for a swing and other adventures.

The only exit is via the reset key, so running the programs from a hard disk can't let the ankle biters accidentally wipe all your files.

Although my children are now out of nappies, friends who aren't so lucky have informed me that their kids just love these programs. So far I have not had any reports of disasters, although I would recommend using a hard drive to minimise the load time of each graphic. Because the programs are not copy protected there is no problem running both from a hard disk.

The review copies were supplied by Dataflow, (02) 331 6153, the distributors for these and all Broderbund software. The price for each program is $69.95 and two disks plus a small manual make up each package.

That forgotten band of computer users, children aged around five to seven are no longer going to have to suffer television and comics as their source of amusement. Two more programs have come my way that are for slightly older children. I've also just discovered Qix, the latest arcade game from Taito which suits anyone from seven to seventy.

Qix

THE WORST THING about Qix (pronounced Kicks) is that I had to eventually stop playing it to write this review. Boy... what a compelling program, enhanced with sound that makes it a great experience. For best sound a stereo card connected to an amplifier system is essential, and the bassy, ethereal sounds generated by the program are almost mind blowing. The game is deceptively simple and requires either a joystick or the keyboard. The joystick is certainly the best way as it gives better control.

The game is rather difficult to describe. The aim is to move a pointer with the joystick to try and enclose an area that reduces the space the Qix can move in. The Qix is described by the programmers as a computer virus (it's not really, so don't worry) and is presented as a series of moving lines, shaped almost like an arrow. If the Qix touches the line you are drawing, blammy! Other nasties are the sparx, the fuse and the spiral death trap. You get three lives, then it's all over. The slower (yes, the slower) the lines enclosing the Qix are drawn, the higher your score. When you have filled in more than a certain percentage of the area, the next level is reached where things get more difficult.

Eventually the Qix splits into two and the difficulty level becomes almost impossible. The game is very challenging, and I was obtaining scores of 0 to over 64,000. It's also a game that young children can play, and I had to eventually shoo away my eight year old daughter for a go at the game. Qix is a Taito product and is available for most computer systems. However I wonder how the other systems compare with the sound produced by the IIGS. Believe me, the rock music that comes with the program makes great listening.

The recommended retail price is $44.95, and the review copy was supplied by Two Series Software (address above). But as the blurb on the packaging says, 'Qix may impair your ability to enjoy ordinary home video games.'

Milliken Story Teller

STORY TELLER is a learn to read program, and the package includes the program disk with three story disks; Little Red Riding Hood, Henny Penny and The Ugly Duckling. It works from a single 3.5-inch drive, as the program itself loads into memory leaving the drive available for the story disk. The action is simple: a graphic, some text and a digitised voice that reads the text. The sound is very good, although the reading speed is rather fast. This is more of a problem when word underlining is selected, as the underline cannot always keep up with the voice. Pressing Ctrl-S will slow the speed by 25 per cent, but the pitch goes down accordingly giving a rather masculine sound to the female voice. Also the intonation of the voice suffers, giving a somewhat synthesised effect.

Moving to the next graphic is not as straight forward as the manual claims. Pressing 'any key' does nothing, and the trick is to move the mouse pointer to the bottom right of the screen to invoke the pointing finger icon. When this icon is present, pressing the mouse button causes the program to continue. There is a fairly long delay before the next picture appears, but children are usually more patient than software reviewers and the text appears instantly giving the user something to ponder during the load time. The graphics are relatively simple and the program is an excellent way to have kids improve their reading skills.

Comprehension can also be tested by selecting Questions from the Preferences menu. When this option is set, a question such as 'where is the ...?' is posed every four or five screens. Moving the pointer and clicking on the correct object is rewarded with a graphic that replaces the text section of the screen. Get it wrong and the question is asked (verbally) up to three times after which the required object is framed.

Although not referred to in the manual, there are two hidden mouse commands that are accessible anytime during a story and that might be accidentally triggered by an adventuresome child. The top left of the screen hides the Exit command, and the top right gives access to the Preferences. This allows the options (Speech, Underline and Question) to be changed during the course of the story. Pressing P also invokes the Preference menu.

For best sound a stereo card connected to an amplifier system is essential, and the bassy, ethereal sounds generated by the program are almost mind blowing.

A nice touch is the colouring-in section included at the end of each story. The outline of one of the graphics used in the story is shown, where the user first selects from a pallet of 15 colours at the bottom of the screen then points to an object in the picture which then fills with the selected colour. It's fairly slow, but children will love it.

The review copy was supplied by Dataflow. The recommended price was not available at the time of writing.

The Ugly Duckling

IT'S PERHAPS unfortunate that Byte Works decided to use the Ugly Ducking as the story in their program for early readers, as Milliken opted for this story as well. However it is interesting to compare the two programs, as they both behave differently albeit to achieve the same thing. The graphics in the Byte Works version are more detailed and the text is integrated with the picture. The text is automatically highlighted as it is read and, unlike the Milliken version, this program is childproof.

A five year old knows nothing about a mouse and an icon, but is happy to bash a fist onto the keyboard. Except for the Escape key, which returns the program to its opening menu, banging 'Any Key' simply makes the program go to the next frame. Here the previous frame dissolves gently into the next, so the delay seems less apparent. In fact, the time between frames is quite short anyway, as it is based on System 5.1, rather than System 4.0 as in the Milliken version.

The options don't include testing comprehension, but the user can select 'wait and read' or 'read and wait'. The first option highlights each word in red, then waits for junior to press any key after which the word is read aloud. The second highlights the word as it is being read, again only after a key is pressed. During the course of the story, the option of returning to the previous page is available, achieved by clicking the mouse on the left arrow icon. Other icons include the Go icon which is used during the 'wait and...' options, a Stop icon to pause the reading process and a right arrow to go to the next frame. Thus an adult can supervise and control the story if required.

The digitised voice sounds excellent, and the reading speed is slower than the Milliken version. Because the graphics are more complex, the whole story requires two disks. When the first is finished, it automatically ejects, and a graphic makes it clear what must be done at this point. That is, put in the pink disk. If the blue disk is required, the graphic tells you. Kids are able to put a disk into a drive, but find it hard to get the disk out, hence the automatic eject feature.

But the feature that will appeal to teachers is the price. The recommended price of the program is $59.95, but this allows the purchaser to copy it for all computers in the classroom. If a school is lucky enough to have 30 IIGS computers in a classroom, the teacher can legally make 30 copies. The only restriction is that a copy needs to be purchased for each room. The program is not copy protected and therefore runs from a hard drive. While it will operate on a network, this is not recommended due to the reduced speed of operation.

The story can also be printed out, graphics and all, and special colouring in pictures can be printed. The idea is to give the kids a hard copy of the pictures so they can read or colour in after watching the computer version. Hitting the reset key is the only way to exit the program, as with the Milliken version.

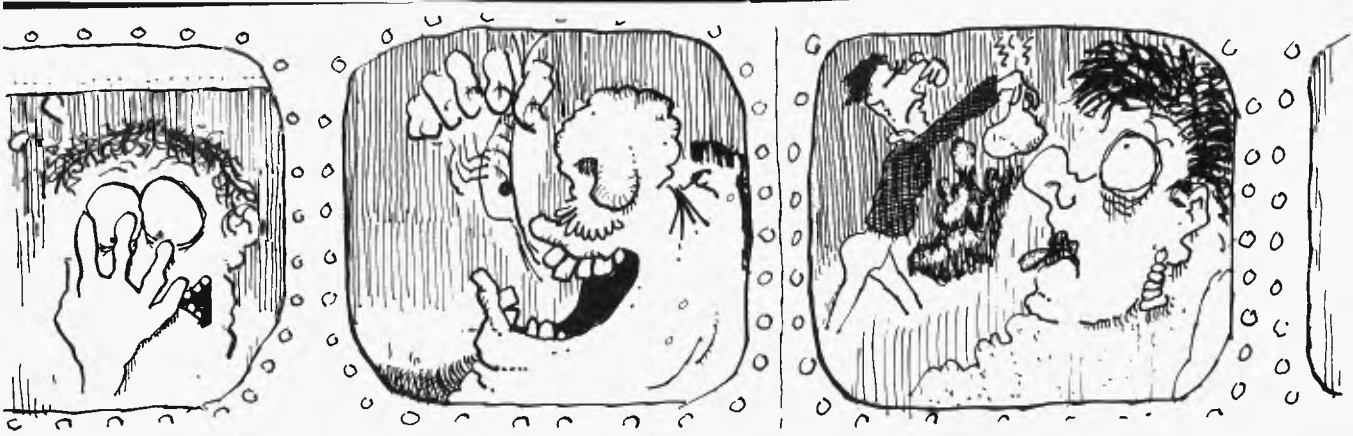
Comparing the two programs gives good and bad for both. The Milliken version includes three stories, but the program is more difficult to operate and is not childproof. The Byte Works version needs at least one disk change, although Story Teller requires that the program be loaded first before the story disk is inserted. The reading pace is much better in the Byte Works version, and the printout option will be useful to many parents and teachers. The choice is yours.

The review copy was supplied by Two Series Software (address above) and has a recommended price of $59.95 which covers a room license as well. □

A monthly treatise by PC expert Vern V. Shrunkle. MC (21st's a specialty) B.A (looks like a bribe is needed, Madras), Creator of the famous "Diptintar" public domain word processor for PC owners with broken keyboards!

PCs for Blokes

This discourse is strongly weighted in an effort to get me a free trip on Qantas next time I need travel OS.....
No advertising material and NO Greg Schmidt training course *brochures please.*
(Re-told and illustrated by Foote and Mowth)



Howzatt fellow PCers . . . 36,000 feet and 500 miles an hour and just an hour out of good 'ol LA. A bit different to the old Lancasters we used to fly on bombing raids over the oil refineries in Scotland during the war. Young Jakey has sent me Qantas of course, and this young fella Stewart has been looking after me on the way over. At last count I've got nearly a hundred of those dinky little bottles of Southern Comfort in my travel bag so we should have a painless time in America. I'm amazed they don't catch on to the old 'get up from the economy seat, walk to the gents and sit in a vacant business class seat' trick. "Young Stewart. Another plate of prawns, a jigger of bloody mary and a handful of those reverse doggy bags if you please."

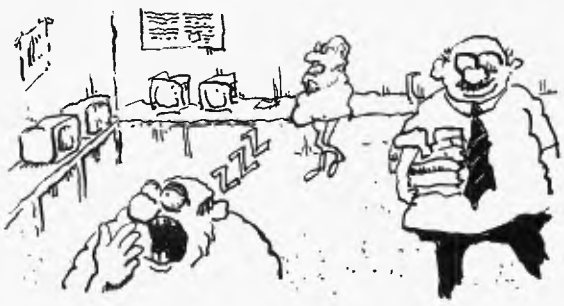
After four hours getting through customs and finding a shuttle flight to Las Vegas I'm starting to get a bit weary, but the end is in sight. Here we are at the famous Tropicarnal Casino. $25 a night through the whole year and $120 a night during Comdex. Still, they do have slot machines on either side of the bed, in the bathroom (and believe me, the only way of getting any toilet paper is winning it) and even a keno terminal in the drawer next to the Gideon Bible.

It's Sunday afternoon, and I've had my fill of walking along Fremont street getting free martinis, popcorn, slot pulls, guaranteed blackjack hands and souvenir newspapers with my name in the headline. This is the time we old show-hands register for Comdex, beating the Monday-morning rush.

Come to think of it, everyone usually does the same thing. I'm registered as VIP international press, of course, so that probably explains the vicious looking lot of criminals in this line with me. "G'day Neville!"

Up here in the cool and quiet above the East Hall is the famous Comdex press room. This is where we famous press types decide the fate of millions of workers in the computer industry.

Next door is a room where over a thousand vendors put out around 400kg of press releases per journalist. The first year I came here it cost me $18,014.64 in excess baggage to get that little lot home, so now I just bring a couple of hundred of those Reader's Digest postage-paid envelopes and send everything home that way. Actually, I'm still waiting for last year's mail to arrive at home. I did get lots of boxed sets of the best of Chopin, though. Ah, there's some of the gang. "G'day Jerry, g'day John, g'day Gareth."



Now you'll probably have guessed that old uncle Vern wouldn't come this far without a little good old Aussie technology to make the daily trekking a little easier. Most important is the old "Back to the Futcher" Mk II converted Franklins shopping trolley for collecting those brochures and giveaways. The hardest part there, of course, was getting it converted to left-hand drive so it veers uncontrollably to the left every now and then, instead of to the right like they do at home. Next, we have the telescopic Comdex-badge presenter. Over here they don't want your business card, but take an impression of your badge on one of those Bankcard machines. I must remember not to get confused like I did last year. Somehow I managed to buy 4-gross of demo-dealer packs of Swahili Wordstar when all I was trying to do was enter their contest for a perspex mouse-house.

One of the best things about a visit to Comdex is meeting-up with all your old Australian mates you haven't seen since last year. I'm lying of course — the best thing is the parties but don't ever tell the little woman. She'd never understand about that Dutchie Jan who throws a party each year just so he can massage feet. My favourite party is John Dvorak's secret, invitation-only, ultra-exclusive secret party .....I wonder what it's like?

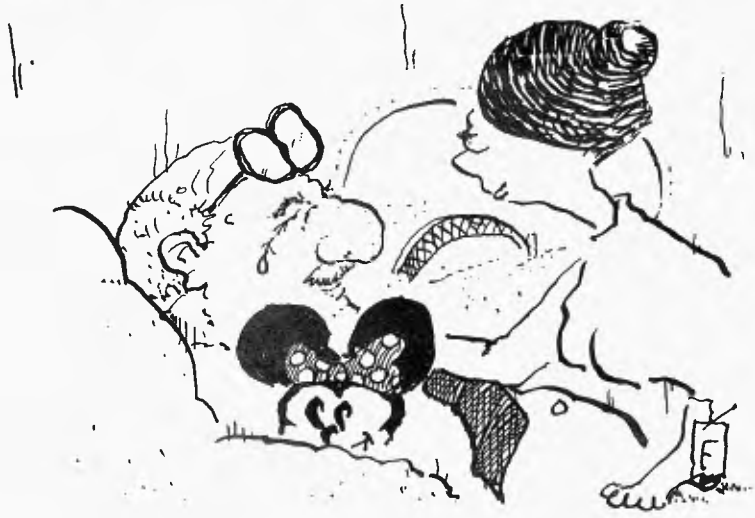
Actually, the most familiar faces are those cute little Taiwanese people (Mr. Chang, I think they're called) who visit the Aussie shows too.

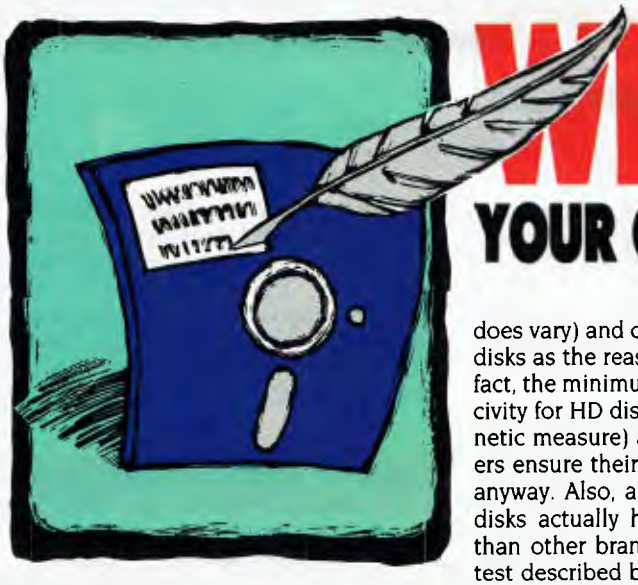
Every stand has to have a gimmick — it might be a magician, a wild-west cabaret, a space ride, a kissing booth with Phillipe Kahn — you know the sort of thing. All I can say is, cut back on that garlic Phillipe!

That's where the Shrunkle shooting stick comes in. It's one of those walking sticks that folds-out into a little seat so I can get a possie at the show's where they hand-out baseball caps if you can last through the whole sales-pitch.

But then it's down to the real business — sending stories back home to young Jakey. Marvellous stuff, technology. I carry the old ToshPaq portable around and write the stories as I go. Then I go back to the press room, and read the stories off the portable's screen and type them into the network terminal and print them out on the laser printer. Next, I fax them back to Sydney and young Jakey types them into his President desktop publishing computer.

I gave up ringing-in the stories after breakfast because he kept snoring and yelling something about time-drones or blind-zones or something. Anyway, I'd better get off because I'm flying home tonight and I still haven't worked-out how to get all these free copies of dBase IV through customs. The other problem is, how do I make them stop making those sloshing noises, like they'd been hollowed out and filled with bottles of 97 proof Old Cougar's Breath?





WRITE BYTES

YOUR COMPUTER READERS' FORUM

Here's your chance to air your view or gripe about the computer industry, or to ask about a problem you've been unable to solve. And – we always like to hear about what we are doing right and wrong by our readers. Write to: ***Write Bytes, Your Computer, PO Box 199, Alexandria 2015 NSW.***

The upside of disk doubling

I noted with concern a letter that was published in your November 'Tech Tips' entitled 'the downside of disk doubling'. It was directed at the DoubleDisk Converter which we market and I would like an opportunity to respond to it.

The DoubleDisk Converter is a device that punches the sense hole in a 3.5-inch double density disk (DD, 720K) allowing it to be formatted to high density (HD, 1.44Mb). The increase storage capacity can typically save users $4 per disk. In the letter mentioned, Tony Little of Nashua stated that there was a 'risk of losing data' and followed that with a great deal of rather vague technical information in support of this statement. I would like to ensure our existing customers and any prospective users of the DoubleDisk Converter that their data is as safe as if they had used high density disks.

Mr Little is very quick to point out that the HD media is less than half the thickness of the DD disks. Why then must the end user pay more than double for the HD disks? Surely $4 for a hole is exorbitant! Most manufacturers in the USA agree that the media is identical (although thickness does vary) and cite extra testing of the HD disks as the reason for the higher price. In fact, the minimum ANSI standard for coercivity for HD disks is 600 oersteds (a magnetic measure) and all major manufacturers ensure their disks are above this level anyway. Also, a number of brands of DD disks actually have higher specifications than other brands of HD disks. Also, the test described by Mr Little seems to have been done on only one disk of each type, so the variation could as easily be attributed to variations in the manufacturing process.

Over 120,000 DoubleDisks have been sold in the USA over the past two years. We have a standing offer to replace any converted disk that will not format as a HD disk, but, to date, have never had to do so. Besides the many satisfied users, Norton's Disk Doctor, a very stringent task master when testing disk sectors, can't find fault in the high-density variation.

Should any user wish to query us further, we would be happy to discuss this

Help!

TWO YEARS ago *YC's* office burnt to the ground. In that disaster we lost everything, including all of the back issues of the magazine. They have since been replaced – except for the first issue, dated May/June 1981. Our tenth anniversary is only a short time away and we desperately need a copy of that magazine, preferably in (almost) mint condition. If any reader would care to donate (or even loan) that one to our library, we all would be most grateful: please call Natalie Shaw on (02) 693 9702 and we will arrange pickup.

issue – (02) 413 4494 – and also supply copies of the many positive reviews. An interesting question that we may ask is, 'Why is it acceptable to format a DD disk at the double density level in a high density drive as all systems allow us to do. According to Mr Little's test this is also unacceptable. Are we risking data loss by using standard facilities supplied to us?'

Saul Kaplan
Macromatix Pty Ltd

A copy of the above letter was faxed to Tony Little at Nashua; at press time we had not received a reply.

Improving skills

Six months ago, at the age of 50, I started to get interested in computers. Not knowing anything about them, I followed the advice of a local dealer and bought an Amstrad PC2286/40; with it came Microsoft Excel, Word 5, Windows and GW-Basic. I have since added PC Tools and Harvard Graphics. While I have been using those packages and think I have learned a lot about what I can do with a computer, I don't think I have really learned anything about computers and would like to improve my skills. To this end, I would like to know if there are any books to help me?

J. Heyworth

'Improving computer skills' is something we all are trying to do, no matter how long we've been working with them. Probably the best way to master computer basics is to learn programming language. Since you already have GW-Basic, why not start there? The first step is to set yourself a project to give a reason for learning the language – it doesn't matter how simple it seems, as long as you have a goal. Another worthwhile skill is mastery of batch file writing: as well as a powerful tool, it teaches the limitations of the operating system as a user interface. Once you feel competent in these, you might want to move on to one of the implementations of the C language. Browse through the computer titles at any good technical book shop and I'm sure you'll find plenty of ideas on the sorts of things you can write your own programs for. However, don't learn simply to know: always have a goal in mind (without that it's like learning to drive a car and mastering the theory of the internal combustion engine without ever going anyplace).

An excellent way to broaden your perspective on PCs, is to join a user group. From your address, I'd suggest contacting the Sydney PC User Group – it has a very active collection of Special Interest Groups. Leave a message for Mark Herron on 580 9549 for membership details.

Electronic Bible

While Dr Parker's Electronic Bibles review in your November issue gave a clear description of the Bible programs mentioned, it failed to mention the hottest new program on the market, namely QuickVerse 2.0. It's a major improvement on version 1.0 and now includes most of the features of CompuBible and Genesys as well as adding mouse support, notes and split windows plus the Companion TSR. The article also failed to mention our stores in Sydney, Melbourne and Perth.

Peter Foote
Koorong Books

Because we rely on local users for many of our reviews, rather than drawing them from overseas publications, the time between an author's receiving the product and our publishing the review can often be several months. The positive side of this is that our reviewers have ample opportunity to actually use the product as it was meant to be applied, rather than give it a cursory look; the negative side, of course, is that a new version is often released before we go to press. Thanks for bringing us up to date on QuickVerse. In reply to your last point: many products are sold through hundreds of shops across the country; it would be impossible to mention all of them and do it accurately, for that reason it is general publishing policy to only mention the head office of the primary importer of a product. □

AD INDEX

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